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Clinical Lectures

ON

DISEASES OF THE CHEST.

Delivered at Charing-Cross Hospital,

By Hyde Salter, M.D., F.R.S.,

Fellow of the Royal College of Physicians, Physician to Charing-Cross Hospital, and Lecturer on the Principles and Practice of Medicine at its Medical School.

LECTURE VI.—Part I.

ON THE HÆMORRHAGES OF HEART DISEASE.

Gentlemen,—It is a good thing at times to pluck out a symptom and isolate it from those with which it is commonly associated, and study it apart by itself and in its relations. In its way we get a better knowledge of its varieties, of its reactions, and of its value as a coefficient in those complex pathological states in which it occurs; we are able to look at it all round, and contemplate it from different points of view; we can judge better how far it is essential, how far incidental, how far a cause, how far a consequence; we can see not only what *it* is without its surroundings, but what its surroundings are without *it*. Such a process is, in fact, a process of abstraction, and has all the advantages of that method of investigation.

I wish you to-day to treat in this way a symptom of which we have lately seen a good many examples in cases of heart disease that we have had, and some of which we still have, under our observation in the wards of the hospital—I mean the symptom of Cardiac Hæmorrhage. And I am anxious to direct your attention to this subject because it is an interesting one in many points of view. It is interesting as an example of a particular type of hæmorrhage; it is interesting physiologically, in relation to the results of impeded circulation; it is interesting from its clinical details and circumstances; it is interesting and important in relation to prognosis, often telling us to what degree of obstructiveness the heart mischief has reached; and it is interesting and important in relation to diagnosis, and may go a good way, in a doubtful case, to turn the scale of opinion as to the organic nature of the cardiac disturbance, and as to the exact seat of the lesion. I have seen cases where diagnosis has gone wrong for want of a knowledge of this symptom, and right from the possession of it; I have seen cardiac hæmoptysis, misunderstood, direct the attention to the lungs, and so away from its true cause; I have seen it, appreciated, lead at once to the detection of unsuspected heart disease. Finally, a knowledge of its true nature will guide us to the principles of its treatment.

And first as to the type of hæmorrhage of which it is a representative. It is an example of what may be called the "hæmorrhage of stasis"—of hæmorrhage caused by the inability of the walls of the bloodvessels any longer to resist the accumulating distension occasioned by the establishment of an impediment in front. Its explanation is entirely mechanical. I need not point out to you, gentlemen, how inevitable and how immediate is the production of a certain amount of hypertension when any bar to the free transit of the blood is placed at any part of the circulation. There are four points about this hypertension that are constant:—First, that it will be, *cœteris paribus*, proportioned to the degree of impediment in front; secondly, that it will be first developed and most developed immediately behind the point of impediment, wherever that may be; thirdly, that it will retrograde in a direction opposite to that of the circulation, and fourthly, that it will give rise to certain anatomical results in proportion to, and in strict dependence upon, the degree to which it is developed.

The first two of these propositions are self-evident, and require no explanation; the third is scarcely less so, and requires very little thought in order to see that it is necessarily true; indeed, if you think the matter thoroughly out, you will see that it is little more than a corollary of the second; for it is manifest that if the original stoppage brings the blood immediately behind it to a standstill, this blood, thus arrested, becomes a source of arrest to that immediately behind *it*, and that, in its turn, to the blood next coming up, and so on, higher and higher up the stream, further and further back, till at length the entire circuit is involved in the arrest. This fact we shall presently see to be of some importance in helping us to determine what are the particular vessels that are the seat of the hæmorrhage in certain cases. By the fourth proposition I mean that a certain amount of obstruction gives rise to anatomical results of one kind, and a certain greater amount of obstruction to anatomical results of another kind. The first result is merely to produce a certain degree of hyperbloodedness of the part—passive congestion—without any other appreciable result. As, however, the tension rises, instead of the feebly albuminous fluid that in a natural condition is ever escaping the vessels and irrigating the tissues, serum itself is poured out; in other words, the over-distended vessels relieve themselves by the transudation of a portion of their fluid contents, and in such quantities that the transuded fluid cannot be absorbed as fast as it is poured out, and, accumulating in the interstices of the tissues, constitutes œdema. Carry the tension a step further, and all the elements of the blood escape, corpuscles and all. Thus you have—first, congestion; second, serous transudation; third, hæmorrhage.

The simplest clinical expression of this, and one admitting the readiest and most deliberate observation, is what we often see taking place in a limb in the successive stages of systemic venous stasis, whether caused by heart disease or in any other way. At first the hands and feet are cold and blue, and the circulation in them is manifestly retarded. They then become œdematous, and swell. When the œdema has reached an extreme degree of development you observe perhaps, one day, a little purpura-looking spot or two; the next day you see several. The cuticle then, very likely, becomes raised in bullæ by the pent-up serum transuding the cutis; you then notice that in one or two of these bullæ the fluid is becoming sanious; it then becomes completely sanguineous; and finally you may have large bladders full of blood covering the hand or foot, its circulation brought to a standstill, the part becoming cold, boggy, and oozing, and undergoing a sort of hæmorrhagic gangrene. I have several times seen this, particularly in the young, in whom the results of impeded circulation become developed to the utmost before they succumb; and a horrible state of things it is. Place the same events in the lung, and what do you get? First pulmonary congestion, then œdema pulmonum, then hæmoptysis. Place them in the kidney, and what do you get? First renal congestion, then albumen in the urine, then hæmaturia.

We have lately had in the hospital, including those who are still under observation, ten cases of cardiac hæmorrhage, of one form or another. All these ten cases belong, curiously, to one of two varieties of valvular disease; seven of them are cases of mitral constriction, and three of double aortic disease. The three aortic cases were all men; the seven cases of mitral narrowing were all women, except one. Of the ten cases, six are dead, and four survive.

Let me now read you the notes of one of these cases, just as an example of the kind of thing you will meet with.

Case 1.—William C——, aged thirty-two, a fine muscular man, with red hair and fair complexion, was admitted into the hospital on September 24th, 1869. He had been a soldier, had been in India, and had always enjoyed good health. About eighteen months ago he was laid up with rheumatic fever, on account of which he was pensioned. He was disabled by his rheumatism for nearly twelve months; and six months after he was first attacked began to suffer from pains over the base of the heart, experienced great difficulty of breathing, and was soon quite incapable of the slightest exertion. The pains in the region of the heart never abated, but about a month before he came into hospital, having taken fresh cold, they became much worse, and he was attacked at times with alarming dyspnœa.

On admission, the action of the heart was found to be very much accelerated, and the dyspnœa so urgent that no examination of the chest was attempted; he was harassed, moreover, with constant cough. The legs were very much swollen. He was ordered fifteen grains of compound scammony powder. The next day (the 25th), the dyspnœa having partially abated, the heart was examined, when a loud double bruit was found at the base, having all the characters of systolic and diastolic aortic murmur. The pulse was rapid and feeble. He was propped up in bed day and night, being unable to recline in the smallest degree; and stimulants were constantly administered to him, the dyspnœa at times being so urgent as to threaten immediate suffocation. On Sept. 28th he coughed up some blood for the first time, mingled with mucous expectoration. The hæmoptysis continued getting worse day by day till Oct. 1st, when the amount of blood coughed up was about a pint. The ice which was given him to check it seemed to irritate the throat and increase the cough. On Oct. 2nd the dyspnœa was so urgent that he was unable any longer to stay in bed; he was placed in a chair, propped up with pillows, a hot bottle was put to his feet, the legs and lower parts of the body were wrapped in blankets, the ice was resumed, and in this position he got some relief, and the hæmoptysis was partially arrested. On the 3rd it still further diminished, but still continued with but little interruption. A nurse had to sit by him day and night and give him brandy, which was the only thing that at all relieved the frightful dyspnœa from which he suffered. He was quite blanched, and complained (as far as he could speak) of constant faintness. The pulse became increasingly feeble and irregular, the surface cold and damp, and the sense of faintness more and more distressing, until the morning of the 4th of October, when he died, the urgency of the dyspnœa remaining unabated, and the hæmoptysis continuing up to the end.

At the post-mortem examination both lungs were found almost universally infiltrated with blood—in part as well-defined masses of pulmonary apoplexy, in part in general undefined infiltration of the air-tubes. The heart was much hypertrophied; and on opening the left ventricle up to the aortic valves, two of them were found broken down into one by the destruction of the artery at their point of adjacent attachment; just below this point the wall of the vessel was eaten through, apparently by recent inflammatory ulceration, and there was a free communication with the pulmonary artery, so that the blood from either vessel might have passed freely into the other. Besides this, the valves were thickened, and puckered quite out of shape.

Exactly how much this blood this man spat up in the seven days the hæmoptysis continued it would be difficult to say, but it was probably more than three pints, besides that with which his lungs were found stuffed after death. The method of his death was undoubtedly complex—partly from the mechanical impediment to the circulation offered by the ravages of the disease of which his aortic valves were the seat, partly from anæmia, and partly from the apnœa occasioned by the almost universal infarction of his lungs with fluid and coagulated blood.

It is not, however, commonly that the hæmorrhage is so profuse as in this case, or that it contributes, itself, to bring about the fatal issue. Generally the amount of blood is inconsiderable—not enough to produce any appreciable effect; and its importance is simply that of a symptom, as the following cases will show:—

Case 2.—Anna G——, aged forty-three, a widow, by occupation a laundress, was suddenly seized, two years and a half ago, with all the symptoms of heart disease. Four months ago they greatly increased; but she continued her employment, though quite unfit for it, till a week before her admission into the hospital, when her dyspnœa rendered her unable any longer to move. When admitted (Dec. 24th) she was suffering from extreme difficulty of breathing, was unable to lie down day or night, the heart's action was irregular, rapid, fluttering, and feeble; it was impossible to follow its movements with precision, or count its pulsations. About sixty-eight pulsations could be counted at the wrist in a minute; but, if all the intermissions were filled up, it would make a hundred and forty. It can readily be understood how difficult it must have been to fix and verify a murmur in a heart whose rate of pulsation was a hundred and forty, and whose action was so feeble and irregular; nevertheless I thought I could plainly detect, when I got an unusually strong and sustained contraction standing out clear from its neighbors, a presystolic murmur—that I could verify a short apex-grind closed by the first sound. She began to spit frothy, florid blood and blood-stained mucus on the day of her admission, and never stopped spitting it a single day after she commenced. It gradually increased in quantity till (after she had been in the hospital three weeks) she spat in twenty-four hours a quarter of a pint of a mixture of blood with a thin frothy mucus, in apparently about equal parts, the whole being of a brown-blood color. After she had been in the hospital a month, feeling herself sinking, she insisted on leaving. The hæmoptysis continued undiminished, in spite of all remedies, up to the day she left.

Case 3.—Maria S——, aged twenty-nine, a widow, began to suffer from palpitation and breathlessness about a year ago, soon after commencing to earn a livelihood by turning a mangle. Two months before her admission she apparently caught cold, and was seized with pain in the chest, difficulty of breathing, inability to lie back, palpitation, a bursting oppression at the heart, orthopnœa—starting up in bed at night in a breathless state,—and the expectoration of a "pink froth." These symptoms continued with very little abatement till the time that she came into the hospital. On her admission she is described as pallid, breathless, unable to lie down, or sleep except in a sitting posture, with the face puffed, the feet slightly swollen, cough, and the expectoration of frothy mucus, tinged with bright blood. The urine was smoky and highly albuminous. On examining the heart, a grinding murmur was heard at the apex immediately preceding, and wound up by, the systole. Under treatment the patient began to improve almost immediately. The hæmoptysis ceased in about a week, and did not return during the remainder of her sojourn in the hospital. She left in five weeks, suffering from nothing but slight dyspnœa and palpitation on exertion; but the murmur remained, and will remain.

Case 4.—George C——, aged thirty-two, a fine and well-developed young man, and given to athletic sports, was seized with violent dyspnœa and palpitation while swimming, in the beginning of October. Shortly after this he noticed the same symptoms when rowing, and applied to this hospital as an out-patient on October 14th. He was then unable to sleep for more than five minutes at a time,—and was obliged to sit in a chair all night, the orthopnœa preventing his lying down. On examining the heart a diastolic murmur of musical, rasping character was heard at the base, and less strongly at the apex; and a slight blowing systolic one also at the base, and along the course of the aorta. He was admitted on Nov. 19th. A few days after his admission he began to spit blood, in small quantities and frothy, which continued for several days, and then ceased. On the 12th of December he left the hospital much relieved, the blood having ceased for some days. On February 28th he was readmitted. All his old symptoms had returned, he was unable to lie down, got hardly any sleep, and the hæmoptysis had reappeared with greater severity than before. Under the treatment which was adopted, and which I will speak to you about presently, this and his other symptoms soon abated; and when he left for the Convalescent Institution at Walton, on the 24th of March, all hæmorrhage had ceased, the heart had very much quieted down, the palpitation and dyspnœa were only felt on exertion, and he could sleep; but the double murmur at the base was, of course, unchanged.

Now, in these cases of cardiac hæmorrhage, such as I have just related to you, what are the bleeding vessels? We have evidence of such a state of things on the left side of the heart as must greatly obstruct the pulmonary circulation; the patient discharges blood, manifestly from the air-passages; where does the blood come from? From the lungs, you will tell me. Doubtless, but when you have told me that, you have only approximately answered my question. There are two sets of vessels in the lungs—two independent circulations,—from either of which, conceivably, the blood might come: the pulmonary circulation, the circulation of function, bringing venous and returning arterial blood; and the bronchial circulation, the circulation of nutrition, bringing arterial and returning venous blood. From which of these two is the blood of cardiac hæmoptysis derived? Bearing in mind the relative position (in relation to the circulation) of these two sets of vessels, and bearing in mind, too, what I told you just now—that the hypertension of circulatory obstruction is first developed and most developed immediately behind the point of impediment,—we should naturally conclude that the pulmonary vessels were the seat of the hæmorrhage; and this first impression would, I do not doubt, be the correct one.

The considerations that, to my mind, point to this view with the greatest force are these:—

1. Its *primâ facie* reasonableness; the whole weight of the most manifest probabilities is in favor of it. Here you have vessels immediately behind the point of obstruction, vessels peculiarly bare and unsupported by the external pressure of sur-

rounding tissue elements, and through which, as well as through the right side of the heart, the obstructing force must necessarily be propagated in order to reach the bronchial vessels; and surely it is reasonable to believe that, thus exposed to the whole brunt of the obstructing force, they would be the first to yield, rather than those more distant vessels which they themselves are the only means of access to, and which are guarded from the obstructive force by two sets of valves.

2. That the hæmoptysis is sometimes entirely unaccompanied by those signs of general venous stasis, dropsy, &c., which ought to exist if the hæmorrhage was due to the obstruction having retrograded upon the bronchial vessels; for it is only as a part of the general venous system that the bronchial vessels could become sensible of it and affected by it.

3. That the hæmoptysis is often unaccompanied by mucous expectoration or mucous sounds, which ought to exist, and necessarily would exist, in the presence of such bronchial congestion as the hypothesis of the bronchial source of the hæmorrhage would imply. For the congestion to be such as to rupture the congested vessels it must be extreme, and I hold that you cannot have bronchial congestion without mucous exudation.

4. That in the majority of cases in which extreme pulmonary congestion is brought about in the later stages either of heart or lung disease, where you have mucous exudation, pulmonary œdema, and general dropsy, no such hæmorrhage takes place.

If, then, this is so—if the pulmonary capillaries are the seat of the hæmorrhage in disease of the left side of the heart,—the hæmoptysis of heart disease is derived from a different set of vessels from the hæmoptysis of apnœa. I used to think their source was the same. I used to think that the blood was pulmonary, and not bronchial, in both cases; that, for example, in the hæmoptysis of asthma, as much as in that of mitral constriction, the blood was derived from the pulmonary capillaries of the air-cells, ruptured by congestive distension. And I thought so in obedience to what I was taught. I was always taught that when the circulation through a part became arrested in consequence of its function being impaired or suspended, it was due to stoppage in the capillaries, from failure of a certain circulatory force supposed to be resident in these vessels, and necessary for driving the blood through them—the *vis nutritionis* or *vis capillaris*, as it was called. The capillaries, thus unable to pass the blood onwards, became engorged, and the distension, if extreme, resulted in rupture. But a great deal of evidence, both positive and inferential, has been brought forward to show that the direct effect of the shutting off of air from the lungs is to starve the pulmonary capillaries of blood, and not to load them with it; and that the stoppage is due to the contraction of the minute pulmonary arterioles. The whole weight of evidence derived from Dr. Geo. Johnson's observations on thickened arteries in chronic kidney disease points to this; and so does the fact that the lungs of criminals who have been hanged, and of dogs killed by plugging the windpipe, are found remarkably anæmic, and collapse to an unusual degree. The blood, therefore, that an asthmatic coughs up after a paroxysm of unusual severity, or that flows from the mouth of a drowned dog, is, it cannot be doubted, derived from the bronchial capillaries, and perhaps venules; it depends upon the obstruction, started at the pulmonary arterioles, retrograding through the right side of the heart upon the venous system, and it shows how promptly the condition of hypertension is propagated backwards in spite of the two sets of valves with which the right chambers of the heart are guarded.

But whilst it is probable that the hæmoptysis of valvular disease affecting the *left* side of the heart is pulmonary, and not bronchial, it is manifest, on the very same grounds, that hæmoptysis from valvular disease affecting the *right* side would be bronchial, and not pulmonary; in each case the vessels ruptured would be those next behind the point of obstruction. Disease of the valves of the right side of the heart without similar and even greater disease on the left side is, however, so rare, that positive data as to the occurrence and nature of hæmoptysis from uncomplicated dextral valve-lesion must be wellnigh wanting. One of our cases furnished, I at one time fancied, such an example; I will relate to you the particulars of it.

Case 5.—Eliza A——, aged twenty-four, was admitted into the hospital on January 6th, suffering from extreme dyspnœa, palpitation, œdema of the lower extremities, and, indeed, all the symptoms of advanced heart disease. She had rheumatic fever eleven years ago, but suffered from no heart symptoms till within the last twelvemonth. She was unable to lie down, her pulse was weak and rapid (120 per minute), respirations 48, and she was constantly spitting—and had been for two or three days—small pellets of blood and blood-stained mucus. On examining the heart, a systolic murmur was heard of maximum intensity at the lower sternum in the middle line, at a point corresponding to the margin of the right ventricle. It could be heard faintly both at apex and base; but its point of maximum intensity was the right ventricle. There was no mitral murmur; but the first sound was not clear and natural. She died on the 11th, five days after her admission, continuing to spit pellets of blood to the time of her death. The diagnosis that was deduced from the physical signs was—tricuspid regurgitation, and such a state of mitral valve as prevented its sharp and sudden closure, probably a thickened and leathery condition of it, but not such as necessarily implied any interference with its function. There was no sound that actually pointed either to mitral constriction or insufficiency.

Here, then, was a case of cardiac hæmoptysis in which there was no reason for believing that there was any obstruction on the left side of the heart, or any state of congestion, therefore, of the pulmonary capillaries, but in which the tricuspid regurgitation would imply that these capillaries would receive less blood than usual; while the bronchial vessels would be unable to empty themselves forward in consequence of the regurgitation into the right auricle, and would become, therefore, the seat of congestive distension. Here, then, I thought, was a case confirmatory of the correctness and sufficiency of Dr. George Johnson's explanation of the seat of the hæmorrhage in the hæmoptysis of apnœa, and suggestive also of the possibility that such might be the source of the bleeding in cardiac hæmoptysis generally. The post-mortem examination, however, entirely destroyed the value of the case in this point of view; for while the tricuspid valve was found so diseased as necessarily to have given rise to regurgitation, and to confirm the correctness of the interpretation we gave to the lower-sternal murmur, still the mitral orifice was found narrowed to a degree so extreme as to account for any amount of stasis and engorgement of the pulmonary capillaries. The case, therefore, left the question where it was before; and the blood probably came, as in other cases of mitral and aortic disease, from a pulmonary, and not a bronchial, source.

LECTURE VI.—Part II.

ON THE HÆMORRHAGES OF HEART DISEASE.

Hitherto the only form of cardiac hæmorrhage that I have spoken to you of has been hæmoptysis. But I have seen many others. One of the commonest, next to hæmoptysis—which is, however, beyond all comparison the commonest,—is purpura. Purpura in connexion with and dependent upon heart disease is by no means an uncommon thing. One of the most remarkable cases that I ever saw, and which some of you must remember, was that of a man who was under my care in September, 1868, from the history of whose case I will read a few extracts.

Case 6.—John M——, aged thirty, a well-grown man, but pale and puffed, by occupation an engineer, single, temperate, and never having had rheumatism, was admitted into the hospital, with all the ordinary symptoms of heart disease and a double aortic murmur, on Sept. 16th. He had been subject to incredible hardships and privations, and during the last winter and spring walked altogether between six and seven thousand miles in search of work. His symptoms first appeared about three months before his admission, by a sudden pang in the left breast, accompanied with breathlessness and palpitation, seizing him as he was walking up a steep hill in one of his journeys in search of work. From that time exertion never failed to bring on a recurrence of these symptoms. About five weeks before he was admitted, when he was still in the North, and before he had done his final bout of walking, his feet began to swell, and he noticed that his girth was increased, so that his waistband would not meet. A fortnight previous to his admission, while lying ill at home at Westminster, purpuric spots appeared on his legs, at first only a few about the ankle; they appeared first on the left leg, or four or five days after in a similar situation on the right. They gradually increased in number, and spread up the leg to the knee, which they had reached at the time of his admission. He had never seen anything of the kind before, and could not think what they were; he had never been particularly inclined to bleed or bruise, nor is there any trace of hæmorrhagic tendency in his family.

On admission the purpura formed a tolerably thick crop around the ankles, extending thence up the shin. For some few weeks it did not spread above the knee, but, on the contrary, was considerably reduced by the treatment which was adopted; so that a few days after his admission nearly all the spots were gone. Twenty grains of compound scammony powder for four or five consecutive days would clear away almost every spot. No sooner, however, was the hydragogue omitted than back they would all come again. It was curious to see how proportionate they always were to the other sign of circulatory stasis—the œdema. The scammony temporarily removed the œdema, and it removed the purpura too. Its intermission brought back the œdema, and with it the purpura. Two or three days' recumbency lessened the œdema, no more spots appeared, and the old ones faded; while if he was on his legs for a day or two the œdema increased, and a thick crop of fresh spots came out. After a little time the hydragogue treatment seemed to exercise less control over both the purpura and the œdema, and they gradually increased in spite of its frequent employment. The spots now formed a thick dense crop, covering the whole of the leg below the knee. In a short time a few scattered spots appeared above the knee, and, gradually becoming thicker, extended up the thigh. From the thigh they passed up to the buttocks, loins, and trunk, extending from the abdomen to the chest and thence to the arms, and, as they invaded fresh regions, becoming thicker and closer in the parts already occupied. Even now the vigorous employment of the scammony for two or three days would put a temporary stop to the extension; but it would do no more, and as soon as it was intermitted the process would go on again. At length every part was completely covered; and I do not think it would have been possible to have found a situation in any part of the body where a fourpenny-piece could have been placed between the spots. I never saw a case of purpura to be compared with it, either for the thickness of the points of hæmorrhage, or the universality of their distribution. There were, however, no large, diffused, subcutaneous vibices, and no internal hæmorrhages of any kind. In this state the poor fellow, finding all his symptoms gaining on him, and seeing how powerless treatment was effectually to stop their progress, left the hospital that he might die at home in peace. We did not, therefore, see the end of the case.

In The Lancet for 1861, I published three cases of the concurrence of purpura with valvular disease of the heart. One was that of a girl, aged fifteen, who had had rheumatic fever two years previously, and was admitted with a loud mitral systolic murmur. Both the legs were covered with purpura from the knees to the ankles. She had had an exactly similar attack some months before, and had since been liable occasionally to a few spots, but always in the neighborhood of the shin. The second case was that of a boy aged fourteen, also rheumatic, and also with a mitral systolic murmur. Five days after his admission spots of hæmorrhagic purpura appeared on the anterior aspect of his legs, most abundant on the front and inside of the shin; at first a thin sprinkling, but soon a thick rash. Under the influence of treatment which I will mention to you presently, both these cases were well in a fortnight. In the third case the age was greater, thirty-two, and there was no history of rheumatism; but the murmur was mitral regurgitant, as in the others. The man's constitution was broken down by drink, and his kidneys were affected. The purpura covered the front of both legs from the knee to the ankle, and the spots varied in size from that of a pin's head to that of a split-pea. Under treatment the œdema and purpura vanished together in ten days.

Epistaxis is another form of cardiac hæmorrhage of which I have seen several examples; and considering how marked are the evidences of venous turgescence in the head and neck in heart cases, and how easily the vessels of the nasal mucous membrane give way, it is a matter of surprise to me that it does not occur oftener. The most severe and persistant case that I have seen is that of a young girl who is still under my observation as an out-patient, whose case is full of interest in many points, but my remarks on which I will confine to this particular symptom.

Case 7.—Bertha W——, aged sixteen, of a peculiarly florid complexion, the face being universally suffused with a deep crimson flush inclining to purple, turgid and vascular, and with all the symptoms of heart disease except dropsy, was born very thin and feeble (although at the full time), and up to three years old had a very delicate and fair skin; her complexion then became coarse, florid, and veiny, as it is now. About the same time palpitation and shortness of breath were noticed, but her health appeared unaffected, and she ran about the garden and played with her brothers and sisters like the rest. Between three and four years of age, possibly a little earlier, the bleedings at the nose began. From that time up to two years ago, since which time they have been much fewer, they occurred profusely five or six times a year. The nose would bleed all day without stopping (on one occasion it bled uninterruptedly for three days and nights), or it would continue at intervals for a week, the child bleeding for a few hours, then going to sleep, and then bleeding again. By the end of that time she would be completely blanched, as if she had no more blood in her. She would then take iron and quinine, and in a fortnight be as florid and bursting with blood as ever. She must therefore have had from forty to forty-five of these profuse attacks: and in some of them the loss of blood was apparently so great as to place her life in danger. All this time, too, she has been subject to severe headaches, which have been worst when she was most florid and purple, and always relieved by the bleedings. After the bleedings she felt her head clearer, and was able to work better at her lessons. She has never spat blood, or had purpura, or any other form of hæmorrhage except the epistaxis. The physical signs in this case appear to me to point to tricuspid regurgitation as the sole valvular lesion.

There is another case of cardiac epistaxis at the present time in the hospital, which curiously resembles the above in two particulars—in the peculiar purple floridness of the complexion, and in the nature of the murmur, which is that of tricuspid regurgitation. The points in relation to the hæmorrhage are these:—

Case 8.—Henry W——, aged seventeen, was attacked two years ago with the symptoms of heart disease, shortly after exposure to severe cold, but which did not give rise to any rheumatism. Soon after his heart symptoms commenced he began to suffer from attacks of profuse nose-bleeding. The first attack must have been within two or three months or so of his first heart-trouble, and his last attack was a week or two ago, since he has been in the hospital. He cannot say how many attacks he has had in this time, but he thinks about one every three months. Each time he has lost about half a pint of blood; but on one occasion the bleeding went on uninterruptedly for three days and nights. On this occasion he was very much weakened by the loss of blood, but on ordinary occasions he has felt the better for it. Ever since the supervention of his cardiac symptoms his head has felt giddy, confused, and full, and after these nose-bleedings it has felt lighter, and his eyes clearer and less misty. Before his heart became affected he never suffered from bleeding at the nose.

Three or four years ago a man was admitted into the hospital evidently in the last stage of heart disease. Two or three days after his admission he was attacked with profuse bleeding of the nose, which was so profuse and so ungovernable that, after many remedies had been tried and failed, both nostrils were obliged to be plugged. In spite of this, he lost blood largely every day, and became perfectly blanched and anæmic. The nostrils remained plugged up to the time of his death, for every day the bleeding broke out afresh. The man was reduced at last to the extremest degree of bloodlessness; and I have no doubt that the hæmorrhage, while it was the result of the heart disease, was itself a main cause of the rapidity with which he sank.

The next form of cardiac hæmorrhage to which I will direct your attention is one of which I have seen only a single example, and that but the other day—hæmaturia. Hæmaturia *with* heart disease is common enough; but not hæmaturia *from* heart disease. In all the cases in which I have previously seen this symptom and heart disease associated, the kidneys have been affected, and therefore no inference could be drawn as to the heart disease having favored the hæmorrhage; but in this case it was not so, the kidneys were healthy, and the hæmorrhage appeared to be simply one among other expressions of cardiac circulatory stasis. When I read you the notes of the case you will at once remember the man.

Case 9.—Laurence G——, aged forty, of fair and florid complexion, was admitted, with all the ordinary symptoms of heart disease, and with a mitral systolic murmur, on the 2nd of November, under the care of my colleague, Dr. Headland, who kindly directed my attention to him. Two months after his admission his symptoms became aggravated, the œdema of the legs increased, and an eruption of purpura appeared on the legs and thighs; at the same time a large ecchymosis appeared on the right upper eyelid, exactly similar to one resulting from a blow. This was on the 14th of January; the next day the urine was distinctly smoky, and after being filtered gave just a trace of albumen, but a mere trace—merely that which belonged to the blood, and which, blood being present, could not be absent. Blood casts were plainly detected by the microscope. On the 15th the blood had increased; on the 16th it was present in large quantity; on the 17th the quantity was less; and by the morning of the 20th the urine was clear and perfectly free from albumen. The ecchymosis covering the right eyelid underwent all the changes of an ordinary bruise; and in a few days had disappeared entirely. Previously to the appearance of the hæmaturia there was not a trace of albumen, or any other element pointing to renal disease, nor was there after; so that there, could be no doubt about the kidneys not being organically affected. The patient continued to get gradually worse, and died suddenly from syncope on February 1st. Previously to his death the same symptoms reappeared, accompanied with a large extravasation in one of the eyelids and around the eye.

These, gentlemen, are the only varieties of cardiac hæmorrhage that I have myself witnessed; but other observers have seen and recorded other varieties, as into the muscular tissue, into the intestines, and into the stomach.

Of the causation of cardiac hæmorrhage there can be no doubt; it is evidently, as I have already pointed out to you, the hæmorrhage of rupture from distension, the distension arising from obstruction. In proof of this, we find, as a rule, that it only occurs in cases, and under circumstances, of extreme obstruction; that it is generally a late sign, preceded by œdema and other evidences of impeded circulation; that the most obstructive valve-lesions produce it the most, and that the seat of its occurrence is often determined by the seat of maximum obstruction; that what relieves distension relieves the hæmorrhage. Probably impaired nutrition of vessel wall, arising from the impeded and imperfect circulation, may diminish its resisting power and so facilitate its rupture. It has been supposed, too, by some that hypertrophy of the right ventricle is of itself sufficient to give rise to hæmoptysis, just as hypertrophy of the left ventricle is supposed sometimes to cause apoplexy; but I am inclined to agree with Dr. Flint of New York, that the hypertrophy of the right ventricle which sometimes exists in cases of cardiac hæmoptysis and pulmonary apoplexy would be a far less powerful and efficient cause of the hæmorrhage than the disease of the left side of the heart by which such hypertrophy is almost invariably accompanied.

But while we admit that the hæmorrhages of heart disease are the hæmorrhages of *stasis*, that the immediate and efficient cause of the vessel giving way is the obstruction to the circulation which the valvular lesion involves, yet, it is evident there is some *tertium quid*, some further condition necessary, otherwise we should see the hæmoptysis, or other hæmorrhage, proportioned to the amount of obstruction, and universally present where that obstruction was great; whereas no such proportion exists. We often find cases in which the symptoms of circulatory stasis attain their highest development, and yet there is no hæmorrhage whatever; while in other cases the hæmorrhage will occur very early, and when other evidences of impeded circulation are slight, or altogether absent. This *tertium quid* I believe to be a certain amount of the hæmorrhagic tendency, or diathesis. And independent of the necessity of supposing the existence of some such predisposing cause of the hæmorrhage in order to explain the anomalies of its occurrence, there are two special circumstances that favor my belief in its existence. One is, that almost all the individuals in which we see cardiac hæmorrhage have the characteristic complexion which accompanies the hæmorrhagic diathesis—*fair* and *florid*. The other is that the majority of the cases are of rheumatic origin, and that there is undoubtedly a connexion between the rheumatic and the hæmorrhagic tendency. I am satisfied there is a certain class of patients, representing a certain type of constitution, and marked by an unmistakable *physique*, in which struma, rheumatism, diathetic hæmorrhage, chorea, and certain other morbid states are apt to occur, almost interchangably. If they have not one of them they have the other, or they have two or more of them combined, or in succession, or some members of a family have one and some another. Such people are fair, with delicate transparent skins, florid (if not anæmic), with hair either red or sandy, and light eyes with a good deal of eyelash. Such are the majority of cases in which we find cardiac hæmorrhage in its most aggravated form.

In relation to *diagnosis*, the value of hæmorrhage in connexion with heart disease is twofold; their relations are reciprocal, each may throw light on the other; the heart disease may explain the true nature of the hæmorrhage, while the hæmorrhage may lead to the detection of the heart disease. Of the first I have seen many examples; the case of Laurence G—— was a very striking one. His hæmaturia, unattended as it was with albuminuria, or any other symptom of renal or bladder disease, would have been inexplicable had it not been for his cardiac symptoms, which showed it to be the mere passive hæmorrhage of passive stasis, and to point no more to disease of the kidney than the purpura that accompanied it did to disease of the skin.

So far for the value of heart disease in diagnosing the nature of hæmorrhage. But what is the value of hæmorrhage in diagnosing heart disease? It is twofold: it may point to the *existence* of heart disease; and, as I have said, it may, with a certain probability, point to its *nature* I do not know that I have myself met with any case in which the *existence* of heart disease was diagnosed on the strength of the hæmorrhage, for in all my cases the previous existence of the heart disease was well known; but I have heard of such from others. I think, however, we can clearly see, in some of the cases that have been under our observation, a certain diagnostic value in the hæmorrhage as to the *nature* of the cardiac affection. Thus, in all the cases of mitral constriction, six in number, the hæmorrhage was hæmoptysis, unmixed with any other form of hæmorrhage; while in the two cases of tricuspid regurgitation the hæmorrhage was epistaxis, uncombined with hæmoptysis or any other form of hæmorrhage. This distribution of the hæmorrhage in relation to the seat of the valve-lesion is perfectly intelligible. If the injury is on the left side of the heart, the obstruction to which it gives rise retrogrades directly on the pulmonary circulation, and you get hæmoptysis; if it is on the right side of the heart, it retrogrades directly on the systemic venous system, and you get epistaxis, or some other form of systemic bleeding. In other words, the law is, that those vessels give way, and are the seat of the hæmorrhage, that are placed next behind the point of obstruction. Hence, the occurrence of hæmoptysis in cardiac cases, unaccompanied with any other hæmorrhage, would point to the disease being on the left side of the heart, and if it occurred early, while the general symptoms were but little developed and there was no œdema, would, in my opinion, almost infallibly point to mitral constriction; while the occurrence of epistaxis, or some other form of systemic hæmorrhage, unaccompanied by hæmoptysis, would raise a reasonable suspicion of the existence of mischief on the right side of the heart.

The occurrence of cardiac hæmorrhage is, in relation to *prognosis*, an unfavorable sign as far as the heart disease is concerned, because it indicates that the organic lesion has attained considerable proportions, and is exercising a fatally obstructive influence on the circulation; it indicates the arrival of that state of things by which heart disease is generally brought to a close, and so gives the patient but a short outlook. I do not know any symptom of worse prognostic import, except the existence of advanced œdema, and in some cases I can conceive (indeed, my cases prove, as I shall presently show) that hæmorrhage may be a worse sign than œdema—a sign of more immediate danger, as indicating greater stress and strain on the circulation, and as constituting a danger *per se*.

But while the occurrence of hæmorrhage has a very unfavorable influence on the prognosis of the heart disease, the prognosis of the hæmorrhage itself is not as a rule unfavorable. In the cases of E. A——, J. M——, A. G——, and L. G——, the heart disease terminated fatally and speedily, but the hæmorrhage had nothing to do with the fatal result, and did not accelerate it in the least.

Such then is the rule of the prognosis of cardiac hæmorrhage;—very bad as far as the heart disease goes, but favorable (that is, not implying any danger) as far as the hæmorrhage itself goes. Now let me direct your attention to some of our cases which are striking exceptions to both these rules—exceptions that show, on the one hand, that cardiac hæmorrhage may comport with the great prolongation, perhaps even the *indefinite* prolongation, of life, and, on the other, that it may itself kill the patient, and that speedily.

We have had three cases under our observation, showing to what a degree life may be prolonged after the occurrence of cardiac hæmoptysis.

The first is that of Emma C——, a young woman, whose case I directed your attention to on a former occasion in relation to the subject of presystolic murmur. There was an interval of two years between the first appearance of cardiac hæmoptysis and her death. During that interval she had many attacks, each of some weeks' duration; and what is remarkable is, that towards the close of her case the hæmoptysis almost entirely ceased.

The second case is a still more striking one, for the subject of it is alive now, and is regularly attending, as an out-patient, my colleague, Dr. Pollock. His name is John M——; his age is now twenty-seven; he was in the hospital about a year ago, and you may remember that I directed attention to *his* case also in my lecture on Presystolic Murmur. He began to spit blood about four years ago, as soon as the aggravated cardiac symptoms set in, and continued to do so off and on for three years, when it gradually ceased.

But the third case is the most remarkable of all. This, too, was one of the cases of my lecture on Presystolic Murmur. It is that of Fanny B——, who, at the time that I first saw her and admitted her into the hospital, nine years ago, was nineteen years of age. About two months before I saw her, having always enjoyed good health up to that time, she was suddenly seized with shortness of breath, to such a degree that she could not cross the room, and a week afterwards the spitting of blood appeared. The blood was in little pieces and bright, not profuse. When admitted, her dyspnœa was very urgent, and of the true cardiac type. She was obliged to lie very high at head, and was continually spitting blood. On examining the heart, a strong, rough presystolic murmur was at once detected. The blood-spitting went on for two years, and then gradually ceased, and now for some years she has seen nothing of it. When last I saw her, some few months ago, she was much better than I had ever seen her before; her symptons had almost disappeared, and the murmur was much fainter. It was impossible to doubt that the state of things at the mitral orifice was much improved. In what way a mitral valve so damaged as to give rise to such an extremity of dyspnœa and so persistent an hæmoptysis could ever so recover itself as to be compatible with[1] easy breathing and cessation of almost all symptoms, I will not now discuss. What I wish to impress upon you is, that cardiac hæmoptysis of severe type may be compatible with an indefinite prolongation of life, and with an ultimate restoration to something very like health,

Now turn to the other side of the picture. Is cardiac hæmoptysis ever itself a source of danger? What say the authorities on this point? They either say nothing special on the subject, or they tell us that they have never seen the hæmorrhage large in amount, or such as to constitute grounds for apprehension. But what say our cases? In two of them the loss of blood, together with the lung infarction, unquestionably played a part in bringing about the fatal issue, although the patients could not be said to have died of the loss of blood pure and simple. But I have seen two cases in which this actually took place—in which the patients simply bled to death from cardiac hæmoptysis. One was the case of a man admitted into King's College Hospital when I was house-physician there, some nineteen years ago. He was admitted on account of the hæmorrhage, and was spitting blood when he came in, like a person in the height of an attack of the hæmoptysis of phthisis. Everything was tried to arrest it, but in vain; and in twenty-four hours he bled to death. On the examination of the body nothing was found but advanced mitral disease, and the lungs a mass of pulmonary apoplexy. I should mention that the nature of the case was diagnosed, and the murmur verified, before death. The other case was that of a boy who died from the same cause, in this hospital, about ten years ago. He had previously been admitted under my care with all the signs and symptons of mitral disease, and had left somewhat relieved. He was soon, however, readmitted much worse, and within a day or two of his return the hæmoptysis appeared. From the time of its appearance it rapidly increased, soon became profuse, resisted all treatment, and terminated fatally within two days.

And now, in conclusion, let me say a word or two about *treatment*. The only rational treatment of cardiac hæmorrhage is a treatment based on its nature and mechanism. If the hæmorrhage is mechanical, the treatment of it must be mechanical; if it depends on hypertension of the blood in the vessels, it can only be relieved by diminishing their tension. You cannot, unhappily, diminish the tension by removing the source of obstruction—that is beyond your reach; the only way in which you can do it is by reducing the amount of circulating fluid. Jalap, and scammony, and elaterium, are the best antagonists of cardiac hæmorrhage I know; they draught away large quantities of serum from the bowels, and thus diminishing the intravascular pressure, remove for a time the cause of the hæmorrhage. In some of our patients the effect of this treatment has been very striking. In the case of Emma C——, the hæmoptysis always ceased for a time after the operation of a scammony powder; and in the case of John M——, twenty grains of the same drug, given two or three days consecutively, would, as I have already mentioned, clear away almost every spot of purpura. Such an effect is, of course, but temporary, and requires frequent repetition; the quantity of the blood is soon made up, and things are just as bad as before.

When I say that this is the *only* rational treatment, I ought perhaps to admit that anti-hæmorrhagic remedies, such as turpentine, iron, acids, &c., may possibly be of some value in cases where the complexion and *physique* imply that the patient may be constitutionally hæmorrhagic; but I should not like positively to affirm that I have ever seen them so.

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Lectures
ON THE
CLINICAL USES OF ELECTRICITY.

Delivered in University College Hospital,

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LECTURE IV.

V. Therapeutical Uses of Electricity continued: 6, *in chorea;* 7, *in alterations of sensibility;* 8, *in spinal diseases,* (*a*) *"spinal paralysis,"* (*b*) *spinal disease, with "cerebral paralysis";* 9, *in disease of nerve, "local paralysis";* 10, *in paralysis from blood disease,* (*a*) *lead-poisoning,* (*b*) *anæmia;* 11, *in local spasmodic diseases;* 12, *in painful affections, neuralgia, &c.*

Gentlemen,—It will be well to consider here the electrical treatment of (6) chorea. Years ago it was said that good results were obtained; but I must say that, so far as my own experience goes, electricity has done no good in this disease. There are a vast number of cases of acute chorea that will get well if you leave them alone; and almost any form of treatment will appear to prove efficacious if it be taken in conjunction with change from a crowded dwelling house to a well-ventilated hospital ward, to good food and quiet. I believe a great deal of the influence set down to electricity, ice-bags, iron, arsenic, quinine, and other medicines has been imaginary; and that the really curative agents have been those I have mentioned. The modes employed have been as various as the forms of electricity, and each one has lauded in the treatment of chorea that particular form to which he is addicted; but, in my judgment, the less one says, in the present state of knowledge, about chorea and its treatment by electricity, the better will it be for therapeutical science.

7. I pass now to the consideration of some brain affections that are accompanied by alterations in sensibility. And, first, defective sensation, or anæsthesia. Anæsthesia of a limb, or of two limbs, is very rare, except in association with motor paralysis; and then, when it has occurred acutely, it usually exists only during the condition of shock. A patient, for instance, may become hemiplegic from an embolism, or from hæmorrhage; and you will find that during the first few minutes, or sometimes few hours, or, in rarer cases, days, after the onset of the attack, there may be some loss of sensibility. It varies in amount, but, during the condition of shock, may be occasionally well marked. But after that condition of shock has passed away the sensibility commonly returns; and, so far as electricity is concerned, all I have to say is that, during that time, it would be very unwise to use any form of electricity at all.

In certain brain diseases of slow development you may find loss of sensibility; but these are, comparatively speaking, rare. You every now and then meet with some portion of skin defective in sensibility, from a tumour in the head or some other cause. But it is much more common for you to find some modified sensibility, such as "pins and needles," or painful impressions when the skin is touched. In those cases of acute cerebral disease, however, in which you do find persistent anæsthesia, or even only diminished sensibility, it is very rare for you to find that electricity does any good. It may do harm, and I should advise you not to use it unless the case were of such sort that you used it only for the purposes of diagnosis, and then only in such a form as you feel quite sure can do no mischief.

The examples of anæsthesia in which electricity is most useful are to be found in that curious class, or rather medley, of cases that goes sometimes by the name of "hysterical"; for they are met with in women, and are found together with symptoms of the kind commonly regarded as hysterical. Here you meet with marked anæsthesia of the skin in different parts of the body, almost always associated with a certain amount of awkwardness of movement, and sometimes associated with some very definite loss of power. The two often go together, for both the apparent power of movement and the actual power of combining movements are distinctly related to the integrity of guiding sensations derived from impressions made upon the skin. I have known cases of this kind which had lasted for months or years, in which movements of the body or of certain limbs were weak and clumsy, and in which the patients, finding it awkward to use their limbs, had ceased to do so, and in whom, from disuse, the muscular power had become defective, but in which electricity has proved wonderfully useful; for sometimes, after only a few applications, the sensibility and motility have been restored completely. Electricity should here be employed in such manner as to produce a definite and distinct impression on the skin. Supposing there is anæsthesia of the skin of the leg, place one pole of a faradic apparatus in the patient's hand, attach to the other a dry metallic brush, and pass it over the surface of the skin. In that way you send in a number of little bright sparks, which you may see very plainly in the dark, and you sting the skin very briskly. Or you may take a charcoal conductor, or a metallic conductor, and move it up and down on the surface of the skin. In the first few moments perhaps the patient does not feel it at all, but you now and then find the sensibility of the skin return with marvellous rapidity. Sometimes you will find it is a better plan to take two thoroughly wetted sponges, and a tolerably strong current to make the muscles act briskly. By so doing, in the course of a few minutes the skin will often recover its sensibility. I am not able to explain thoroughly why this should be, but I have seen it again and again. An analogous condition is that in which the skin retains its sensibility while the muscles have lost their contractility, and in which by stinging the skin you will sometimes restore the muscular contractility.

Whatever may be their explanation, these are facts, and they have a certain relation to each other. In facial paralysis, for instance, by stimulating the skin, either by electricity or by a blister, you may often bring back the muscular action very speedily. Or, where there is a loss of sensibility of the skin, the muscles acting tolerably well, you may, by putting them into forced action, restore the sensibility of the skin. I think that most likely what one does under these circumstances is to stimulate that which is common to both muscles and skin—viz., vessels; and, further, that, in thus acting on the skin, we exert some influence on the nerve-trunks, and also on their central extremities.

You may accomplish the same end by franklinic electricity, by directing sparks from a prime conductor to the part affected, or by "charging" the patient, and taking sparks away from the surface by your knuckle or a brass ball. The effect of this application is that, in a little time, you redden the skin, and restore the sensibility. In extreme cases you may go still further, and apply a moderate charge from a Leyden phial. For instance, you may enclose a limb between the knob and the discharging rod, and let the shock go through it. This will sometimes bring back the sensibility when other means have failed.

8. There are two classes of spinal diseases to which I have already alluded, in one of which you have the true "spinal paralysis" of Dr. Marshall Hall; in the other of which you have "cerebral paralysis," although depending on spinal disease. In the one the muscle derives nothing from the cord, because the latter is diseased or destroyed; in the other the muscle is still associated with the cord, though that cord may be cut off from the brain.

(*a*) First, let us take the case of the true spinal paralysis. What can you do there electrically? The damage done to the cord is to be measured by the loss of electric irritability, and this whatever may be the form of electricity that you employ. If the electric irritability, in a case of this kind, be absolutely gone, and show no sign of reappearance after four or six applications, your prognosis is bad, and there is little or nothing to be gained by a persistence in the treatment.

Where you find a certain amount of contractility remaining there is a great deal to be done. You compare the limbs of your patient with the healthy limbs of someone of the same age and sex, same class of constitution and thickness of skin, and if you find contractility diminished somewhat, but not lost, there is much room for hope; and a great deal will depend upon what you do as to the upshot of the case in the future.

Take, as an instance, the case of "infantile paralysis" (so-called "essential paralysis" of children)—one of the best examples you can have. A child is a little feverish for twenty-four hours; you find it cannot sit up, cannot move its arms or legs for a few days. Then it begins to move one arm a little, and perhaps one leg; after a day or two more, perhaps both arms. If you do not notice it again for a week, you may find one limb completely paralysed and the other partially; the distribution varying. Post-mortem examination in such a case shows very often disease of the spinal cord itself, running along its whole length; a disease which, when left to itself, eventuates in the destruction of the tissue of the spinal cord; producing in the first instance perfect spinal paralysis, and in the last instance perfect spinal paralysis also, but the former curable, the latter perfectly incurable. In the early stage you find a certain amount of contractility left, but that is very defective. Here very much may be done by electricity. You find also this curious point, that the muscles respond much more readily to a slowly interrupted current than to a rapidly interrupted current. To faradisation you find them defective, and sometimes you cannot get them to act at all. If you interrupt the battery current very rapidly, they sometimes will not act to it; but if you interrupt it slowly, you find that they do. And what is very interesting about these cases, and to which I have already alluded, is this: that the muscles sometimes appear to act much more readily than those in health to a very low current of galvanisation.

To such cases the battery current, slowly interrupted, should be applied with a wet sponge, in the manner I described the other day. It should be applied every day for a few minutes, not troubling yourselves, at first, about particular groups of muscles, but just applying it to the whole limb. If it is the leg, put one of your sponges on the sacrum, just below the groin, or in the gluteal region, and move the other sponge slowly down the front of the thigh, and then the back of the thigh and leg. You often find, under such circumstances, that after a day or two you have to use a stronger power to produce the effect that you produced at first; and you will find at the same time that the muscles respond more readily to faradisation. It is well then to change, and employ faradisation instead, using it with sponges well wetted, trying to pick out particularly certain sets of muscles which have a trick, as it were, of lagging behind the others. These are, especially, the extensors of the foot, the peronei, and the extensors of the fingers. Here, then, you may apply faradisation; and if the disease in the spinal cord be curable, I am sure you assist the process of cure. If the disease has existed for some time before the case is brought to you—and cases are often brought after three or four years' duration,—you will still find that occasionally you can do something. You may call into exercise the muscles of the limb; you can improve their nutrition and their strength; and you may do something towards effecting a change in the nutrition of the cord itself. Where, however, the disease has existed for some time, I have not seen that the repeated use of electricity has done much good, unless the improvement has been rapid at the commencement of treatment. You may see some enlargement of muscles, but there the improvement ends. When you find that, after four or six applications, there is no sign of electric contractility either by the induced or the battery current, it is useless to go on. I have managed every now and then to have cases treated for many months, with the forlorn hope that at some period or another there might be a ghost of contractility returning, but I must say it has been utterly unsuccessful.

(*b*) Let me now direct your attention to cases of paralysis, dependent upon spinal disease, in which there is not any true "spinal paralysis"; for the muscles still retain their connexion with a healthy portion of the medulla, although, owing to disease at a higher level of that medulla, they are completely paralysed to the will. In these cases electricity can accomplish but very little, and yet that very little may be of considerable service. Every now and then a certain group of muscles especially suffers; the sphincters of the bladder and rectum are very prone to be deranged. Sometimes the expulsive power is affected, sometimes the sphincter.

It occasionally happens that, although you cannot in the smallest degree affect the limbs of the patient, you may give the patient a little more power over the sphincters. Probably the nutrition has failed, and the condition is something like that which I have already described. You may bring back power enough to make the sphincters competent; and to do that is to afford great relief. If you want to apply it to the sphincter of the bowel, the best plan is to put one sponge of the faradisation machine over the sacrum, and the other, well wetted, to the anus; and if you want to apply it to the sphincter of the bladder, you place one sponge, well wetted, on the perineum, just behind the scrotum, and the other over the symphysis pubis. By such means you may prevent the frequent involuntary passage of evacuations. I do not say that you will do it in all cases, but you will in some.

But, again, you get cases in which the disease of the spinal cord is such as to produce only incomplete paralysis. The limb is weak, the contractility is less than natural, and the nutrition is disposed to fail. Can electricity do anything there? I think it may do a great deal; these constitute the class of cases in which it does very much good. But here you must observe the caution I gave you in the last lecture—not to use too strong a current of electricity during the early days of an acute illness. If you suppose the patient to be suffering from the effects of a recent myelitis, meningitis, or hæmorrhage into the cord, it is a very foolish thing to galvanise him. If, on the other hand, disease is creeping up slowly—e. g., white softening, or chronic myelitis, or if it depends upon syphilitic meningitis that may have occurred some time ago, and led to some slowly-induced pressure on the cord,—you may, in such cases of partial spinal paralysis, find electricity very useful.

Here it is that I would especially distinguish between the faradic and the battery current. Where there is wasting of the limb, the application of the battery current has appeared to me much more efficacious and much less mischievous than the other, when it is applied in the manner I have described. Where, on the contrary, there has been no such wasting of limb, it seems to me that faradisation has acted better, faradisation applied with wet sponges, and especially directed to the muscles. If the contractility of a muscle is good, and just in proportion as you find the contractility of a muscle good, your prognosis is bad, so far as electrical treatment is concerned. If you find, for instance, a limb perfectly paralysed, but contracting perfectly well to galvanism, or sometimes acting even in excess, you can do nothing more by applying galvanism to that limb. Your prognosis may, however, be good if you find the contractility diminished, but not lost. If it be wholly lost, the prognosis is bad; if absolutely good, the prognosis is bad; if between the two, it is in proportion to the improvement you can effect in the nutritive condition by one or two applications of the current.

I have to mention only one other point in these cases of spinal paralysis—cases of impotence. These cases are sometimes very much improved by the use of electricity applied in the same manner as for loss of power over the sphincter vesicæ.

9. Now a few words on paralysis from injury to or disease of the nerves—the third group. These cases are distinctly of the same class as those which Dr. Marshall Hall called "spinal paralysis." Some persons have called them peripheral, local, or traumatic paralysis. So far as the contractility of the muscles is primarily concerned, it matters not whether you cut the nerves across or destroy the cord to which those nerves were attached. If you divide a nerve going to a muscle—as, for example, when the facial nerve is divided by disease in the bone—you have "spinal paralysis" of the facial nerve in the sense in which Dr. Marshall Hall used that word. The severance of muscles from the spinal centre may be complete or incomplete, and you can measure the amount of damage done by the amount of electric contractility that remains. If a muscle or a group of muscles has been for a time completely paralysed by a damage done to a nerve or by neuritis, and yet the morbid state of the nerve was of such kind that it might be repaired, then, although the nerve has recovered, the results of its disuse may remain, and imperfect paralysis may persist. For instance, take this example, which occurred to myself not very long ago. A man tried to lift a heavy portmanteau, strained himself in doing so, had great pain in his arm afterwards, and then most intense, indeed agonising, burning and tingling in the tips of his fingers and palm of the hand. After a time the pain disappeared, and then it was found that his hand was excessively weak and that the muscles were wasted. He had strained his forearm, injured its nerves and set up some neuritis; but after the neuritis passed away there remained paralysis of the muscles, with wasting, and almost complete loss of electric irritability. It was not until some time after all these symptoms had occurred that he was treated electrically, and then the difficulty to be contended with was the wasted muscles. In looking at what he could do with his hand, we found that there was every movement of the hand that could be performed; he could bend all his fingers, separate them, and bring them together again; but he could not do this quickly, nor could he do it forcibly. There was partial paralysis of all the muscles of the hand, depending upon damage to the nerve, and also upon consecutive changes in the muscles. Electricity was applied to the forearm and hand, and the muscles soon improved in their nutrition; and with that improvement in the nutrition of the muscles the voluntary power returned. You may find a similar thing, now and then, in the case of facial palsy—paralysis persisting as the result of disease. Examined electrically, you find that there is a certain amount of contractility left, although it is defective. If you apply electricity after an interval of two or three weeks, you may often cure the case by a very few applications; but if the paralysis has lasted for six months, you will find at first very little contractility indeed, and you will have to apply electricity again and again before you obtain any distinct marks of improvement. Sometimes there is slight restoration of voluntary power after even the first or second application, and then the subsequent improvement is very trifling. When the paralysis is imperfect, and the contractility is only diminished, you may accomplish much; but when the contractility has quite disappeared there is little or nothing that you can do. You never can tell, until you have made several applications of the current, whether or not the case is curable, for although a group of muscles may be completely paralysed to the will, there may be some few nerve tubules that have escaped destruction, and their functions may be slowly recalled.

The mode in which you should apply electricity in cases of local paralysis is the following:—Place one conductor, well wetted, over the trunk of the nerve, and the other over the muscles, *seriatim*. If you are using faradisation, you may keep the second conductor steady; if galvanism, you must move it about, in order to interrupt the current.

Paralysis of the third nerve, with ptosis or strabismus, may be treated by galvanism or by faradism; in either case one pole should be placed behind the ear, in the hand, or on the cheek-bone, and the other should be applied to the lid. A weak current only should be used, and the application should be brief.

In paralysis of the seventh nerve, from simple exposure to cold, the best plan of using electricity is the electric brush. Place a well-wetted sponge behind the ear, and take the metallic brush, and brush it over the skin, so as to sting the face. If it have existed longer, and there be much wasting of muscle, the same rule applies; but here you should also operate upon the muscles; and I would advise you to use the battery current for a certain number of times, until you find that its power of eliciting contraction diminishes, and then to apply faradisation.

10. And now a word or two about other kinds of paralysis depending more or less on some morbid condition of blood, or nerve, or muscle, or of all these elements together. And, first, let me direct your attention to poisoning by lead.

(*a*) I do not know the precise mode in which lead produces paralysis, or why it singles out particular muscles; but in those muscles which are affected, it is found that there is undue readiness of response to a slowly interrupted galvanic current, and greatly diminished contractility to faradisation and to a rapidly interrupted galvanism. Whatever may be the explanation of these points, remember that it is not simply a question of difference in the kind of electricity applied; for, if you rapidly interrupt the battery current, you find the muscles in lead-palsy do not act to that. The rapidity of the interruption may account for the inaction of faradisation; but why the muscles that are paralysed should act more readily than healthy muscles to a slowly interrupted current has not yet been explained. The mode of treating lead-palsy has been by faradisation, or by the application of the battery current. You take a current from, say, five cells, apply it to the extensors of the hand, and you produce definite contraction. After a few applications you often find that five cells are not enough, you have to use seven or eight or ten; and in a few weeks of application you have to use quite as many to produce contraction as in a healthy limb. At first they are very sensitive to the battery current; then, gradually, as you apply it, they grow less so, and you then, curiously enough, find them brought back into their normal relationship to faradisation. There is no doubt about the fact that the improvement in nutrition, which seems to be brought about by the battery current rather than by any other means, entails a loss of the morbid irritability to that battery current, and with that improvement in nutrition you get a return of the normal contractility. If you have not a battery current, you may use faradisation to begin with; but if you do, be quite sure that you affect the muscles. I have known patients with lead-palsy treated by having their hands in water and their feet in water while the current is passed from one to the other. Such a proceeding is not of the slightest good. If you were to apply one pole of a faradisation machine to the chimney-pot of a man's house, and the other to his door-step, you would be about as likely to get the current into the muscles that you want to benefit. You must apply faradisation locally, with thoroughly well-wetted sponges, and of such low intensity that it is scarcely felt, and yet of sufficient strength for you to be certain that the muscles respond. Use it every day, and have particular muscles singled out—just those which are the most paralysed. In these cases it is often difficult to get the current into the limb; and you will find an advantage sometimes in soaking the limb by covering it, for an hour or two beforehand, with wet lint and oiled silk at the spots where you want to apply the sponges. Get the skin well moistened, and the current will pass through more readily.

(*b*) One word about the paralyses that come from anæmia, and are often met with in pale hysterical girls. Some are set down as hysterical without, I think, any just cause; they are more or less dependent probably on an altered blood state, which may affect the cerebral centres, and lead to these peculiar weaknesses. I am quite sure that some of these local paralyses are relieved occasionally by static electricity administered in the mode I have described already, by sparks from the skin, or prime conductor, or by a Leyden phial. One of the forms which anæmic paralysis occasionally takes is that of loss of speech, or change of voice, dysphonia, or aphonia. It is often called hysterical aphonia. It may be hysterical, according to the use of the term by some people, but in many cases it exists quite alone and apart from anything that one ordinarily recognises as the hysterical temperament. When present there is almost invariably marked anæmia. Here sometimes a few sparks from the prime conductor of a machine will bring the voice back directly. Sometimes, if that will not do, the Leyden phial will immediately succeed, and this after you have applied electricity in other forms without success. A few sparks do not cause pain; but if you apply faradisation to the larnyx, you do cause a great deal of pain. It is uncomfortable to have even a weak faradic current passed through the larnyx, and it is often perfectly unsuccessful; and yet a spark, which causes no distress, will often bring back the voice at once. In certain cases it is desirable to introduce the current of faradisation right into the glottis; and this is so when there is distinct paralysis of the vocal cords. You may see with the laryngoscope that one or the other cord, or that both cords are paralysed; and it is quite easy to apply faradisation to the larynx internally in the manner recommended by Dr. Morell Mackenzie. one pole is held in the hand, or applied to the nape of the neck; the larynx is well exposed; and the other pole is carried between the cords by an instrument constructed for this purpose. This is shaped like a catheter, with a small sponge at the end; and this sponge has a wire passing from it inside the catheter up into the handle, which is so connected with a key that you can either make or break the current by pressing on the key. Having placed the sponge in between the vocal cords, you touch the key and send the current through them. Patients will sometimes cry out the moment that the application is made, as you may very easily imagine that they would if they have any crying power left in them. But many patients prefer the internal faradisation of the larynx to the external, affirming that it is the less painful of the two.

11. There are a few words only which I wish to say about local spasms. The forms of spasm in which electricity has been most commonly used are "torticollis," a spasmodic condition of the muscles of the neck on one side; "writer's cramp"; and so-called "histrionic spasm" of the face. It is said that such cases have been cured, but my own experience has been unfortunate with regard to them. I have tried electricity again and again, and in every available form, but have never seen it do any good. I have tried battery currents, direct and indirect; I have tried faradisation weak and faradisation strong, with wet sponges and with dry; I have used static electricity also, and each form of electricity persistently; I have not given up because the treatment has done no good at first; but I do not know one single instance in which it ever seemed to me to do the smallest good. In torticollis, for the time being, you can put the head straight by either a strong battery current passed through the contracting muscles, or by faradisation of the other side, the muscles of which are often weak; but directly you cease the application the head goes back again into its abnormal position. I have obtained similar negative results in cases of both writer's cramp and histrionic spasm. Others have been more successful, and I trust that your experience may resemble theirs rather than my own.

12. In painful affections, such as the neuralgiæ, migraine, sciatica, tic douloureux, and the like, and also in some conditions of modified sensibility, such as the spontaneous feeling of heat or cold, the sense of numbness, of tingling, "pins and needles," or such-like discomforts, electricity is often of considerable service. It is the continuous galvanic current which you should use, and it should be of only such strength as to be just perceptible by the patient; it should be applied to the part with well-wetted sponges, and should be applied for a short time only, but with frequent repetition. I know of nothing more distinct or more satisfactory in therapeutics than the relief which may often thus be given to suffering of the most intense character, the relief being very rapidly induced, and in many cases permanent. In applying galvanism to the head you must be very careful to avoid using such a strength as to cause vertigo or faintness, and I am sure that you may avoid these evils by trying the current upon your own head first, and then by carefully observing the patient, and stopping the application for a time the moment that there is any complaint, by word, gesture, or look, of any uneasiness in the head or epigastrium.

Electricity is one of the most powerful agents that you can employ in the treatment of disease; but it is useful, useless, or mischievous, according to the manner in which it is applied; and my endeavor has been to furnish you, by means of these lectures, with the information which shall enable you to derive help from it in diagnosis, and confer real advantage upon your patients by rightly directing its therapeutic powers.

Inaugural Lecture

ON

SURGERY.

Delivered in King's College, London, October 4th, 1870.

By JOHN WOOD, F.R.C.S.,

Professor of Surgery to the College; Surgeon to the Hospital;
Examiner in Anatomy at the University of London,
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GENTLEMEN,—I consider myself especially fortunate, in opening to-day a course of lectures which for many years past have been delivered by so eminent a surgeon as my predecessor, that it is no strange class, previously unknown personally to me, whom I have for the first time to instruct; but that the intelligent and inquiring faces which meet my eyes are the same which I have frequently and familiarly met before, and from whom I have received so much goodwill and sympathy in my last sphere of duty. Indeed, there is nothing which affords a greater stimulus to a lecturer to exert himself to the utmost for the instruction of his pupils than a sense of the kindly and appreciative reception of his words; and it is equally certain that little advantage can be derived by the disciple unless he receives them as of greater weight than can accrue from a mere perfunctory and *ex cathedrâ* utterance. I wish, therefore, in going through this course, to be looked upon rather in the light of a tutor, whose object it is to supply the varying wants of his class, than in that of a lecturer, who will give you *vivâ voce* a learned dissertation upon his subject; or rather as a friend who is disposed to help each of you individually along the steep and difficult path to the practical knowledge of surgical science and art; and I am assisted in the fulfilment of this desire by the impending changes in the requirements of the Royal College of Surgeons, with which the Professor of Surgery in this College has necessarily and properly a most intimate interest and correspondence, and which will for the future expect that this course shall be of a more practical kind in reference to that department which refers to operations and to the use of surgical appliances than has hitherto been the case in any lectures upon the subject. I propose, therefore, as soon as the course has got fairly under weigh, and the preliminary lectures treating of the general principles of the art have been delivered, to devote one hour in the week to an examination, combined with practical instruction, in the preliminaries and after-treatment of operations, the principles and practice of bandaging, the mechanical treatment of fractures, and the application of surgical apparatus generally. Sections of the class will be called upon to do these things practically and individually, while the rest will be expected to give the reasons for every course of procedure, as a sort of running commentary or choragic utterance upon the proceedings.

On these occasions I wish the class to ask questions freely, so that each may supply his own wants, and slake the thirst which I hope will be present from the stream of knowledge which it will be my duty to furnish. For that day, gentlemen, we will resolve ourselves into a peripatetic class, and discuss surgical matters with the freedom with which the ancient philosophers in the academical groves of Athens argued high questions of philosophy. There will be supplied living models and lay figures, upon which will be exemplified the different bandages and the application of apparatus, &c. Your first efforts will thus be attempted upon subjects who will not be made to suffer by the unavoidable want of dexterity and the mistakes that must be expected from a beginner; while it instructs you it wont hurt them.

The surgical qualifications which this method is intended to supply to you are those in which the candidates for surgical diplomas have been for some time considered to be especially deficient; and, when one looks at the matter fairly, the manipulative part of our art is really a most essential feature of distinction between the chirurgeon and the physician. For many hundred years, both in the pagan, Greek and Roman times, and in the middle ages, the performance of surgical operations was relegated to the slave, freedman, or servant of the physician, or of the ecclesiastic who made medicine his especial study. but who, by the rules of his order, was forbidden to shed blood even for the sake of humanity. But when surgery rose in the estimation of educated men, and it began to be perceived that in its most highly developed embodiment it was medicine and something more superadded to it in the way of nerve, coolness, responsility, and manipulative skill, there still prevailed some of the old feeling that these latter were qualifications of the body only, and as such were something inferior in dignity to the scholastic and intellectual acquirements of pure medicine. And so a tendency prevailed in the examinations to subordinate the former to the latter, so much that the surgeon came at last to be, in most cases, rather the physician of joints and other surgical diseases than a surgeon in the modern sense of the word.

Again, excellence in manipulation requires certain natural endowments which are not at all common, and, moreover, which are rarely found combined with a high degree of intellectual development. The greatest names in surgery are those of men in whom this happy combination has more or less existed; sometimes more of one than of the other. It seems to be a fact pretty generally acknowledged, that men have passed the examinations at the College of Surgeons who had to learn how to apply a bandage, dress a wound, or put on a truss, at the expense of the unfortunate patients whom they might be successful in persuading to put themselves under their hands upon the strength of the diploma. It seemed high time to alter that state of things. Accordingly the requirements for practical instruction have been gradually rising, and now all candidates are required to have been dressers of hospital patients; but the short time during which this is possible renders it advisable that some preliminary knowledge should be previously obtained. Moreover, dressing without such previous instruction is hardly fair to the patients, subjecting them, perhaps, to suffering from mismanagement or want of dexterity, and the student to a liability to the reproach conveyed in the Arab proverb of the barber surgeon: "He learns cupping upon the heads of orphans"—an Eastern application of the maxim, "Fiat experimentum in corpore vili." Now, to do rightly even the smallest of these details of bandaging, setting broken bones and reducing dislocations, requires a fair and true knowledge of the principles of animal mechanics, which I take it for granted that you have acquired in your first year of learning the bones and dissecting the muscles and joints. If you do not know the kinds of levers you have to deal with, the action of muscles upon them, and the alteration of mechanical conditions which a fracture or a putting-out of joints brings about, you are entitled to but little more respect (even though you may have a diploma) than the quack bone-setter of the country town, who, with the knowing air of intuitive insight, puts up a sprain for a fracture, manipulates a diseased joint as if it were a dislocation, or cracks a rheumatic tendon, and, hey presto! there goes the joint in again; or presses his rough thumb upon the tender spot in the curved spine, and mingles with the scream of excruciating agony from the poor sufferer the brutal boast of having set the fracture or put in the joint which the regular doctor had not found out.

In all these circumstances the want of knowledge on the part of the manipulator entails severe and unnecessary suffering on the part of the patient. Ignorance in this as in many other ways produces as much mischief as imposture. The practical knowledge of anatomy comes in again with even more force in all operative procedures in which the use of the knife is required. In the ligature of arteries, in tracheotomy, in hernia operations, in the performance of resections and amputations, the knowledge of the tissues at sight makes sometimes the difference between success and failure—nay, even between life and death. I trust, therefore, that any shortcoming which the want of subjects may have caused in this particular in your first year will be well supplemented while this course of lectures is going on. The prosecution of the two studies at the same time for one winter session is not by any means a weak point in the regulations of the Royal College of Surgeons. By comparing the dissecting-room with the operating-theatre, you will find, moreover, that in the anatomical resemblances between them there is a difference, and a very important one. This difference springs from the phenomena of life and sensation. It is not merely the machine in motion compared with the machine at rest, although some significant distinctions depend upon this also. In the dissecting-room your work deals with an unresisting corpse, cold in its passive submission, with no impending dread of consequences, no shrinking from the incisive touch of the sharp knife, and no more thought or care for any future injury that human ignorance, malevolence, or the powers of nature can do unto it. The fearsome boundary is passed for it which rendered terror possible and care worth taking. In the dissecting-room, an accidental cut across an important artery and nerve, or even a bad dissection, "cutting away everything," as it is said, has no further bad consequences than the satirical reflections of your fellow-students, or, at most, the dismay and disgust of the Demonstrator, and its effects upon your character for discrimination. But when the surgeon's knife touches the living skin, the quivering muscle, the distended vessels, and the agonised nerve, the conditions are altered to the operator as to the patient, even under the blessed influence of chloroform. The operator has to work quickly, and yet safely and coolly, while the fountains of life spurt from a score of vessels, and the forceps of one hand secures them close upon the knife in the other which divides them.

Now, an unpreparedness in anatomical skill, or even a momentary forgetfulness, or want of quickness in seeing, or an accidental slip of the fingers, may involve the loss of so great a stake as the life of a fellow-creature, and with it your own reputation, and perhaps your livelihood. This work requires training of a more advanced kind than dissecting, and to do it quickly, completely, and well, is a very high attainment, to which not all men can reach. The best preparation for it, short of absolutely doing it, is by close and constant familiarity with the work of the operating theatre after sufficient practice upon the dead subject. The pleasing satisfaction of knowing your anatomy practically and thoroughly, which I hope you will all by-and-by experience, must not, however, lead you to attach undue importance to many of those minor details which are frequently and rightly employed as a test of your practical knowledge. Many a structure which the dissector goes into the habit of avoiding carefully is cut by the surgeon with no thought or consideration for anatomical susceptibilities. To know what structures to cut and what to avoid is one of the great points of difference between an anatomist and a surgeon. For the purposes of the former, many things are important which are not so to the latter; and if you do not learn this, your friends, the candid critics, will speak of you as an anatomical surgeon; and the less the burden of anatomy which the opinion carries in the heads of these gentlemen, the higher will their shoulders at the same time go.

In my address yesterday I pointed out the great value of having main principles of utility always before your eyes in the performance of the most simple duties, and I alluded to what I considered to be a departure from such principles in the use of charpie as a dressing for gunshot and other wounds. A want of attention to the first principles of surgery is often observable also in the application of the bandage—upon which many who have not received a surgical education at all pride themselves, and really can apply, may be, as neatly as you can see represented in any of the illustrations of a manual upon that art. A practical surgeon would say that it is of much more consequence to leave proper openings in the most dependent positions for the drainage of offensive discharges from wounds, than to make the outer surface look smooth and regular. The reasons for this become intensified if it be probable, as often occurs in a campaign, that the dressing cannot be changed for many days, especially in hot weather. Too often the fancy bandage is made like unto a whited sepulchre, within which are pent up death-charged exudations and putrefying sores, and concealing a neglect of the dictates of common sense, the vital principle of modern surgery. Bandages and strapping are mainly of use in affording support to wounds, the surfaces of which are apt to be disturbed or rubbed together by the motions of the patient, and they are beneficial also in restraining the action of those muscles which would spasmodically or involuntarily move the wounded part. They give by their support great comfort to the patient, and are most required in cases that are obliged to be moved or to travel at once. In those cases which can be left on the spot, and kept quiet, the use of stitches only, deeply placed and well applied, is often sufficient where surgical assistance is scanty. The wound can then be kept clean with less trouble, and without the pain and disturbance to the patient caused by tearing off a load of dressing. It should be covered from the attacks of the flies and from atmospheric contagion by a piece of clean rag steeped in a disinfecting solution, or by simple cerate thickly spread on lint, and smeared over with carbolic oil, the vapor of which is by that means sufficiently retained for all practical purposes.

With many of the branches of the surgical art the facts of *Physiology* are intimately concerned. I shall look in this subject also for evidences of your first and second year's industry. In the treatment of diseases of the bloodvessels, a knowledge of vital hydraulics and hydrostatics comes into play. If the forces of the circulation are not well understood, my reasonings upon the nature, cause, and treatment of aneurisms and varicose veins will be in want of a foundation to start from in your minds. In the diagnosis and treatment of injuries of the head and spine, the physiology of innervation will be frequently referred to, and an acquaintance with its facts implied and reckoned upon.

The *microscope* will be in constant requisition for the recognition of the minute structures of the body in comparison with those which are the products of disease. In the section of comparative histology this instrument will henceforward play an important part also in reference to the germ theory of disease, which now occupies much attention, and will influence the future practice both of medicine and surgery, until the facts upon which it is based are thoroughly sifted or finally disposed of. In surgery it has a weighty bearing upon the questions of the origin, propagation, and prevention of erysipelas, pyæmia, and hospital gangrene. I hope that the sharp eyes and industry of many of the class before we may do something to elucidate the doubts which are entertained by many practical men as to the truth of this theory, and the correctness of the facts brought forward by its supporters. It is a field of great opportunities, and one peculiarly rich in material for future aspirants to surgical honors. *Physiological Surgery*, by its fortunate connexion with the most prolific regions of original research, is considered to be a short road to purely scientific distinction. It has, however, its failings and its dangers. Its tendency is to be speculative and unpractical, and to make its votaries addicted too freely to the scientific use of the imagination.

The *Pathology* of the joints and of diseases of the bones constitutes a main portion of that science with which surgery has to deal. You will do well in your third and fourth years of study to be constant in attendance upon post-mortems. Every case examined by you will give you some new light into the nature of disease, and the progressive changes which it induces in the minute structure of parts. The microscope must here also be in active employment, and from every case examined some portions of diseased tissue should be taken home, and studied at leisure with its aid. Notes, and, if possible, sketches should be made of them, to familiarise you with the outlines, and make the details, at first sight confusing and involved, carry a clear meaning to your minds. The structure of tumours, again, is a prolific and instructive field of microscopic research which has been made illustrious by the labors of some of our greatest surgical intellects. And although the microscope has not hitherto given us those distinctive and sharply-defined characters which were, in its earlier days, expected from it in reference to malignant growths, it has cleared away many old notions as to the endozoic nature of these growths, and led us to modify our conceptions of their relation to the normal structures, from which they differ more in their degree of independence and malposition in the system than in their intrinsic nature. The alterations effected in the tissues by surgical diseases have by some been considered to be usually so great as to render the knowledge of the healthy tissues and their relations somewhat subordinate, and of proportionately less importance to the education of the practical surgeon. This I believe to be a mistake, arising from the same tendency to exaggeration and want of balance as the various heresies in the history of religious opinion, in which the elevation of one tenet, perfectly true in itself, has given a false perspective in its relations to others equally true. It is an instance of one-sided bias, which an exclusive pursuit of any one series of facts gives to the mind—the "nothing like leather" of the old anecdote.

This manner of viewing surgery has been called by its followers *Pathological Surgery*. It has been favored apparently because of its bearing upon practice in those branches of surgery in which practice is most abundant. Its too exclusive culture tends to lead to that kind of treatment which most favors the study of what has been called "the natural history of disease." To watch and note the different phases of diseased phenomena, to see the patient day by day more and more overcome by it until he is released by the kind hand of death, is indeed of as much value towards the attainment of right notions of what disease really is and leads to, as the patient observations of the metamorphoses of insects and the entozoa are to the study of natural history. But we are unfortunately too often compelled to do this in the many cases where treatment is of no avail to render it proper to do so where there is a good chance of the surgeon's interference turning the scale in favor of recovery. Exclusive observation of the unchecked progress of a diseased action is apt to create in the mind an overwhelming sense of its irresistible power, like that which awes one in the contemplation of nature's grander manifestations. And its practical corollary is the tenet, that time, rest, and support are all that is needed or ought to be done. To let Nature have fair play in her tendency to recovery, and to stand aside from meddlesome and perhaps vexatious interference, is right as a principle of action in very many cases, but it is one that does not therefore admit of universal application. The attitude of this kind of surgery has led to the application of the name of "*Expectant Surgery*" in this age of epithets and distinctive appellations. In the majority of surgical diseases and injuries, it is far less reasonably applicable than in the practice of medicine, wherein many fevers and other diseases admit of scarcely any other treatment. When pushed to an extreme, however, it has been called, in that department of medical practice, but scarcely justly I think, "a Meditation upon Death." In surgery it may certainly be stated, not unfairly, to be in many cases "a Drifting into Deformity." Private practice upon such principles only, resolves itself mainly into the business, or, if you like, the recreation, of going about to pick up fees, wherein the service chiefly rendered is a visit of gossipy condolence, accompanied perhaps by some purposeless manipulation in the "art of pleasing the patient, while nature performs the cure."

The opposite pole to this contemplative position of the surgeon is one that suits better the eager, bold and determined mental disposition (sometimes qualified by a sort of restless fidgetiness) which leads a man when faced by a difficulty to do something for his patient, or his reputation, or his fee, as the case may be with his conscience. When properly guarded, this tendency is a really valuable one, for, as Lord Bacon has remarked in his "Art of Judgment," "It is the nature of the mind of all men for the affirmative and active to effect more than the negative or the privative." In general practice it results in a treatment of symptoms as they arise (as the phrase goes), and in putting things into prescriptions to meet this or that end, with often but little reference to, and mayhap but little knowledge of or care for, "natural history" in any shape or form, of disease or otherwise. This may be called *Pharmaceutical Surgery* in an abnormally developed form, leading, in the palmy days of a fashion now happily dying away, to the more justifiable applications of the *drenching system*. Now the art of prescribing properly, sensibly, and simply, is one of the most valuable accomplishments you can attain to, and it is one which, I trust, you will all carefully study, both in the out- and in-patient departments of the hospital. There is, I think, a tendency, since apprenticeship became a system of the past, to neglect it, and prescriptions are often badly or ungrammatically written, and directions carelessly given or omitted. Nothing will more diminish the confidence of your patients in the general amount and accuracy of your professional knowledge than such imperfections. They will judge by the sample which they are bound to see, and in some measure to understand, of the whole substance of your knowledge and experience, and as a rule they may judge fairly thereby. And in this, again, method in little things often shows the master of great things.

In operative surgery, when the admirable shrewdness, experienced caution, and humane feeling which you have been hitherto privileged to see exemplified in this chair happens to be wanting, this "do or die" character leads, if untrammeled by knowledge and unrestrained by prudence, to the structures of the human body being considered principally as objects to be cut out, or burnt off, or otherwise scientifically disposed of. Joint cases will be looked upon chiefly as nice cases for excision; aneurisms favorable for tying arteries; diseased limbs beautiful for amputation; and surgical cases will come to be viewed generally as *operation* cases. The impetuous dash and false glitter which coruscates over surgical performances of this style, would perhaps be highly fitting for a bold leader of dragoons; and the blood which follows upon its fatal course is scarcely less appalling. It is comparable to the methods in midwifery which have been alliteratively called *meddlesome*, and its effect upon the minds of very sensitive observers is sometimes rudely expressed by epithets more applicable to an occupation which takes life instead of saving it.

A sovereign remedy for most of these diseases of development in surgical art, is the patient, persistent, constant watchfulness, at the bedside of the patient, of the symptoms and conditions of disease, and a comparison of the effect of treatment and of no treatment but rest and proper diet—"*fidelibus oculis subjecta.*"

The practice of short case-taking on your own account is most valuable; not copying from the notes of the dresser, nor putting down the ideas of others, but your own thoughts, your own observations, especially when they seem to differ from the remarks of your teacher. You can then correct them, if necessary, by personal reference to him, and so acquire "that faculty of a wise interrogation which is half a knowledge." And sometimes you may be able to call to his attention even something which has escaped his observation or that of his assistants; and so you may do good to your patients, and also help your teacher. Your notes should at first be limited to the easier and more common cases, which are really those from which you can learn the most generally useful matters. And when you have obtained experience in these, you will be in a better position to apply to your own minds the wisdom of the father of modern science, "that medical cases should neither be so infinite as to extend to every common case, nor so limited as to admit none but wonders; for many things are new in the manner which are not new in the kind, and if men will intend to observe, they shall find much worthy to observe." Nor should you refrain from noting such cases as are usually considered incurable beyond hope; for much that is useful, and even new, may be learned from them, and to omit them from study perpetuates that "law of neglect" which "exempts ignorance from discredit." I shall aid you as far as possible in so doing by constant reference to my cases in the wards of the hospital in this course of lectures, as well as in those more especially devoted to them delivered in the theatre of that institution; and I hope by so doing to encourage you in the vigorous prosecution of that excellent kind of surgery called *Clinical Surgery*, and so do my best to second the efforts of my distinguished colleague who now presides more especially over that practical kind of instruction,—the knowledge of which is the best passport to success in private practice, and to the highest consideration from the members of our common profession.

There is an extravagance in the outgrowths of modern surgery to which I will finally make some allusions—viz., the extreme tendency to *specialties* in every shape and form. In the number of these I do not intend to include fair and legitimate specialties, such as eye surgery or dental surgery, or even ear and laryngeal surgery; but I would deprecate that tendency to make a mystery of matters which are really only fairly diagnosed and treated upon principles common to all surgery, and which should be guided in their application by the most useful of senses, "common sense." According to some, there is a special mystery in gunshot, shell, and bayonet wounds, which a civil surgeon does not and cannot understand; and yet the effective practice resolves itself for the most part into treatment derived from general surgery and copied from civil hospitals, and where it departs from this it is most likely to go wrong. And there are various departments of surgery which have been asserted to stand upon a higher platform than the firm ground of common and well-tried surgical principles, and which are trivial in the distinctions upon which they make this claim. If no feeling of consideration for the dignity and position of the art as a whole be at hand, we shall arrive at a state of things in which every peculiar excellence by which its practitioners differ from each other (and such differences must necessarily exist) will be held to be distinctions, which fall as far short of being true professional differences as a tailor by trade having a professed specialty for trowsers, or a bootmaker one for corns.

You will, I hope, gather the moral which I intend in these observations, and which I wish to apply only to yourselves as a class of surgery, striving after excellence—that I shall endeavor to influence you, in mastering this branch of your studies, to be *anatomical*, but not too discriminative; *physiological*, but not too speculative; *pathological*, but not too contemplative; *pharmaceutical*, but not too laxative; but above all, *clinical* and *surgical*, but not too operative; special and practical in your knowledge of all its branches, but not too distinctive in your profession of it. And I, for my part, will do my best to lead you by the *via media*, through which you may safely and honorably travel to usefulness, and I hope to competence; and to keep you in the "golden mean," which will best enable you to earn "golden opinions" in the practice of your noble profession.

Original Papers.

CARBOLIC ACID AS AN ANTISEPTIC AND DISINFECTANT.

WITH A FEW CASES ILLUSTRATIVE OF ITS BENEFICIAL EFFECTS IN CATARRHAL, ASTHMATIC, AND BRONCHIAL AFFECTIONS.

By Angus Mackintosh, M.D.

Any person regularly perusing the leading medical periodicals for the last two or three years could not help being deeply interested in the very able and graphic articles which have appeared in their pages from time to time, more particularly those papers that were written with special reference to the "antiseptic system," so widely advertised by Morton, Nunneley, Black, and others, with whose names the discovery will be for a long period associated, in so far as they have labored hard and partially succeeded in immortalising the discoverer.

In the belief, therefore, that the carbolic-acid crisis is past, and while the profession enjoys the glory and serenity of peace and quietness, I desire to state the particulars of eight or ten cases I have treated, with special care and attention, with carbolic acid, and the effects as observed by myself, not in favor of Lister's theory, or against it, but in favor and support of science and the onward march of progress, with the ultimate view to benefit mankind.

Case 1.—In December, 1866, I was called to see a married woman, the mother of several grown-up children, aged about fifty years. On examination, I found her constitution to be good, but she had several varicose ulcers on both legs, about the lower third of the left, and as high as the calf of the right, surrounded with a considerable amount of erysipelas. They were so painful that she could neither stand nor walk with any comfort and ease. On putting a few questions, I learned that she was attended for years by a medical man; but had given him up, as she said, because he could not do her any good. I instructed her to remain in bed, and prescribed the following mixture:—Tincture of sesquichloride of iron, three drachms; spirits of nitric ether, three drachms; dilute nitric acid, three drachms; infusion of gentian, two ounces; water, six ounces: of which a tablespoonful was to be taken three times a day shortly after meals. Externally, I ordered the ulcers to be washed with warm water till perfectly clean of all pus &c., and sent that same day a large bottle of carbolic acid and linseed oil, in proportion of three of the acid to six of the oil, and lint, which was to be saturated by the solution and applied to the wounds, for which special directions were given. The dressing to be renewed twice a day till my next visit, as pus was escaping rather freely, and a bandage, moderately tight, to be applied outside the dressing. When I called again, I ascertained my patient suffered rather severely from pains about the knees; but very little in or about the wounds. The legs were swollen upwards to a considerable extent, which I attributed to the bandage being too tightly applied. I undressed the wounds; and could only detect a small quantity of pus in comparison with that observed two days previous, and that was mixed with a few clots of fresh blood. There appeared to be no disorganisation or putrefaction going on to any perceptible degree. I washed, cleaned, and dressed the wounds with the lint and solution, in the proportion already stated, and bandaged the feet and legs upwards to the knees, diverting the bandage in the shape of figure 8 over the wounds to relieve pressure and consequent pain; thus leaving a space uncovered by the bandage where the solution might be applied to the wounds by dropping it freely on the lint without removing the dressing. In course of a week a decided improvement could be seen: the pains at the knees completely disappeared; the swelling greatly diminished. In a month from the commencement of the carbolic-acid treatment the ulcers seemed healing up, the wounds looked smaller, and healthy granulations were going on rapidly. In two months the woman was able to attend to the duties of her household with comparative ease and comfort; and in four months I considered her, as she did herself, perfctly cured, which opinion was confirmed by the after-examinations.

Having continued the medical adviser of this person, I had several opportunities of seeing her legs since; and I can now testify that both of them are in that state so as never again to trouble her.

In the treatment of this case, as well as in several others I shall have reason hereafter to mention, I was led to think that besides the curative influence attributed to carbolic acid by Professor Lister, in destroying the "germ-poison" that is always wandering and floating in the atmosphere, and thus preventing putrefaction, it has also a special chemical effect on the constituents of the blood itself, which renders it, under certain conditions, more susceptible of being again reabsorbed. 1st. *I observed that carbolic acid, coming in contact with warm fresh blood, hastens coagulation.* 2nd. *That carbolic acid appears to influence and favor the process of separation of the corpuscles of clotted blood from the fibrin, and thus prepares the corpuscles for reabsorption.* From the following facts I am driven to this conclusion. Every time I cleaned and dressed this patient's legs, a little oozing of blood took place, which, in coming into contact with the acid, immediately became coagulated. I may with truth say that, invariably, clots followed each dressing for a considerable time; and in the absence of any pus, or any other appearance of the clots on the dressing, and fibrin being the only element required for the process of reparation, I was naturally led to think what became of the clotted blood. It is not possible, nay very probable, that the corpuscles of these clots which always followed the dressings, and of which no traces could be discovered afterwards, have been, as it were, prepared by some chemical change exercised on them by the acid, and have been thus reabsorbed into the system for the supply of its wants? Again, large varicose veins existed both above and below the ulcers on this woman's legs. At the commencement of my treatment I instructed the nurses in attendance to apply the lotion containing the acid regularly over these swellings, which they did by means of a loose bandage. At the end of about three weeks one or two of these varicose pouches, where the skin was very thin and delicate, broke open, and the clots came away, followed by some oozing of fresh blood; these healed rapidly afterwards by applying the lotion. The rest of the swellings got gradually smaller, till about the end of the second month, they altogether disappeared. This fact strengthens my former conviction—namely, that the carbolic acid with the oil must possess some influence on the materials concerned, besides killing or destroying the putrefactive organisms of the atmosphere; as none of these noxious agents could exist in the coagulated blood constituting these varicose enlargements, because there were no channels through which the medium in which they are supposed to live could have any access, I am inclined to believe that these varicose clots were modeled or changed by the carbolic-acid solution during its application, so as to become fit to be carried away by the stream of blood to the various excretory organs and channels, whose special function it is to separate them from the economy. The friction caused by the blood-current could not prove the means of removing these clots, otherwise they could not have remained so long as sources of irritation in these varicose pouches. It may be mentioned that the tonic and astringent mixture recommended at the outset was continued throughout with slight changes, as the patient required; being a farmer's wife she had all the necessaries calculated under the circumstances to do her good.

The following cases will appear interesting to the profession in so far as they illustrate the beneficial effects of carbolic acid in complicated and chronic diseases, and prove that, by minute care and constant application, the desired result may be occasionally accomplished, however adverse circumstances may appear.

The first case is that of a young girl who had lupus of the nose of ten or eleven years' standing, and who, after trying all the hospitals and dispensaries in the west of England, and some in the neighborhood of London, entirely relinquished the hope of ever getting better; but, through the means adopted, her nose and the adjacent parts, that were extensively destroyed, have been restored. Two years have elapsed since she was considered cured, and there is not the slightest symptom of the disease returning. The second case is that of a married woman, the mother of several children, in whom over-straining in lifting heavy weights caused strangulated inguinal hernia, and who, without an operation, has made a complete recovery. Relative to this case I consulted the late Professor Syme of Edinburgh, and Sir Wm. Fergusson of London. To both of these gentlemen I owe a lasting debt of gratitude for many wise suggestions on various occasions. The third case is that of a middle-aged man, who, in a drunken squabble, sustained a compound dislocation of the ankle and compound comminuted fracture of the fibula. This man also has made a rapid recovery, and was in course of a few months able to work at his trade, and to walk surprisingly long distances apparently without any great inconvenience.

CASE 2.—The following is the history, as given by the mother up to the end of October, 1867, when my attention was called to the case:—H. E——, aged seventeen years, suffered from 1855 to 1858 considerably from inflamed and swollen eyes; constitution always rather delicate. About the end of 1858 her eyes got gradually better, but shortly thereafter she complained of her nose, at the tip of which one or two red spots appeared; these in course of time broke up, forming a scab, and ever since the disease has been extending. After treatment at several public institutions, as already stated, the case was considered hopeless and incurable.

On examination I found her of scrofulous diathesis, figure slender and delicate, and suffering from a catarrhal affection with sore-throat. The nose up to the bridge was swollen and inflamed, exhibiting here and there dull-red points; the tip covered with scab, and underneath the scab small ulcers. The cartilages and some of the nasal bones were partly destroyed, and the adjacent soft parts to a much greater extent. The lips were slightly enlarged; the nostrils almost closed with tumefaction; the eyelids swollen, inflamed, and averted. I informed the mother of the difficulties to be overcome in attempting to bring about a cure, and said that if any means could possibly do good, it must be through a long and tedious process, to which she replied that no process could be too tedious if it were only effectual.

About this time Dr. James Dewar's (of Kirkcaldy) sulphurous acid theories were creating some sensation on the north side of the Tweed, and I considered this a favorable opportunity for trying it, as, from a pamphlet sent me by a friend, it appeared to be particularly suitable to skin complaints. The parents of the patient lived close to the back of my establishment, where I might conveniently visit her twice a day. I ordered a quantity of sulphurous acid from a distance, being not kept by any chemist in the town, and instructed the mother to get an apartment ready, where she might keep her daughter undisturbed for at least two months, which she promptly prepared, the daughter herself being willing to submit to any line of treatment. The place selected was a bedroom about 10 ft. square, where the girl was to sleep by night and live by day.

On Nov. 1st I commenced the application of the sulphurous acid to the nose. I visited my patient twice a day, and applied the acid myself at each visit; the mother, in my absence, dressed it twice more during the day, according to directions—in all, four times in twenty-four hours. The room also was fumigated regularly night and morning by burning sulphur, the doors being closed. She had plenty of beef-tea, mutton-broth, porter and milk, but refused cod-liver oil, on the ground that she took it for years without any benefit, and that latterly it invariably induced relaxation of the bowels. Internally I prescribed the following mixture, which was continued throughout with the exception of two or three short intervals, when the stomach got a little disordered: Liquor arsenicalis, one drachm; tincture of calumba, six drachms; clove water, three ounces; syrup of orange, two ounces; water, three ounces; of which a dessertspoonful was to be taken every six hours, between meals. This treatment was continued without intermission for two months, but without apparent change in the desired direction. No unusual symptom supervened; slight functional derangement of the stomach and bowels occurred on two or three occasions, but not to any unmanageble extent. The application of the acid did not cause any pain or troublesome irritation; it was described as agreeable and rather soothing. I may add that my patient got quite heartless at this result; but I encouraged her by saying that there was one other remedy I should like to try, in which I had great faith.

About the beginning of January, 1868, I changed the sulphurous acid for carbolic acid, and discontinued burning the sulphur. I desired the nose to be poulticed for two nights in succession, which removed portions of the scab; I then mixed the carbolic acid and linseed oil in equal proportions, and ordered the nose to be thoroughly painted with the lotion once every six hours, which was done by means of a camel's-hair brush. The odor was rather disagreeable at first, but did not affect the breathing so much as one would imagine. In a corner of the room a quantity of the acid was constantly kept on a plate, to charge the air, and the same mixture as before administered internally. In the course of a week my patient began to complain of great irritation in and about the diseased part of the nose, so much so that I had recourse to poultices. I next applied carbolic-acid putty, but she could not endure the pressure; I therefore returned to the lotion, of the same strength as before, and continued it without any disagreeable or painful symptom arising. It seemed as if the crisis was passed. In a month's time from the commencement of the carbolic-acid treatment, the catarrh from which she suffered had given way, the throat was easier, and the expectoration less; very little pus could be detected, and the scab was nearly all gone; in short, a general improvement could be seen externally, which gave a new stimulus of encouragement to all concerned. From this period the treatment was attended to with greater care and regularity. About the end of the second month the scab had disappeared, as well as the pus, and the lotion was subsequently used only three times a day. From this date to the end of the sixth month the case went on improving, when a complete cure was effected.

I have not the remotest doubt that the carbolic acid was the direct means by which the cure was accomplished in this long-standing and obstinate case, combined perhaps with a little beneficial aid from the arsenic mixture. On its *modus operandi* I have not been able to decide.

QUERY.—*Has the carbolic acid brought about this desired effect by first destroying the putrefactive organisms of the atmosphere which are supposed to favor if not to create pus, and hence the cure; or has it diminished the quantity of pus by giving increased tone of vitality to the parts through its stimulating and chemical effects, and thus prevent the tendency in the parts to disorganisation and putrefaction?*

Case 3.—On May 18th, 1869, I was called to see a married woman, M. G——, aged forty-two, who had inguinal hernia of the right side, which I managed to reduce by taxis. On the 25th I was again summoned in haste, as in consequence of some violent exertion, she had had a return of her complaint. On examination I found a considerable tumour in the right groin, rather painful when manipulated, which I concluded to be inguinal hernia, and feared, from the symptoms, to be strangulated. Taxis with cold applications having been tried without success, I administered chloroform and endeavored to effect reduction, but failed. The patient was strong and healthy. I gave an enema of warm water and turpentine, after which she was very sick. I again tried, but unsucessfully; to reduce the tumour, which now became red, tense, and painful to the touch. Every effort having been frustrated, I was necessitated to propose an operation. The patient, however, positively declined to submit to any interference of that kind, and said she would rather die than undergo an operation; and this resolution she adhered to in spite of advice and persuasion on the part of myself and her friends.

May 26th.—Tumour red, tense, and painful; no motion of the bowels, sick and urging. Another enema of gruel, turpentine, and laudanum was given; brandy-and-water internally.

27th.—Stercoraceous vomiting; pulse small and feeble; tumour painful and slightly discolored. Warm poultice to tumour; brandy-and-water, milk-and-water, and beef-tea at intervals internally. No motion of bowels; enema given.

28th.—Vomiting continues; countenance pale and anxious; extremities cold; pulse small; mortification in tumour; no motion of bowels. Hot poultices to tumour, renewed every two hours. Can take nothing except brandy-and-water and milk. Enema given.

29th.—Tumour broke open during the night, forming an abnormal anus; large quantity of fæcal matter discharged. Patient not so distressed; pulse small and feeble; face pale and covered with cold perspiration; urging and vomiting almost ceased; gangrene spreading; no motion of bowels. Nitrate of silver freely applied outside the gangrenous part; poultice, saturated with carbolic acid, to wound. Brandy, milk, and beef-tea internally; hot jars to feet.

30th.—Sickness and urging returned; pulse weak and feeble; perspiration profuse; extremities cold. No motion of bowels; contents discharged freely through the preternatural anus when patient turns on the right side. Mortification extending rapidly. Brandy and soda-water, milk and lime-water given at short intervals. Nitric acid applied to the edges of the wound, followed by a stream of cold water; feet kept warm; carbolic acid poultice to wound; enema twice a day; opiate at night.

31st.—Sickness better; mortification checked; pulse somewhat stronger. Slept for a few hours, and took a little beef-tea during the night. Nitric acid again applied; wound dressed as before. No motion of bowels; enema twice a day.

June 1st.—Patient slightly better; took a quantity of lime-water and milk. Not so much discharge from wound. Slept several hours. Beef-tea and brandy to be continued; nitrate of silver to wound; poultice as before. No motion of bowels. Enema twice a day; opiate at night.

2nd.—Sickness but slight; pulse stronger; took more beef-tea and brandy. Slept for four hours. No motion of bowels. Enema at night.

3rd.—From this time the patient continued to improve, and for six weeks the motions passed regularly through the abnormal anus several times in the day. No wind nor anything else passed through the rectum for that period. As she began to get stronger, the thigh of the right side was flexed on the abdomen, the knee at right angles, and fixed in that position, from which she was not to move except to relieve the bowels, which she could only do by turning slightly on her right side. The edges of the wound were partially drawn together by means of adhesive plaster—nitrate of silver being used more or less every day,—and dressed with carbolic acid and oil in equal proportions.

Being surprised and puzzled that no evacuation of any kind passed through the natural channel per rectum, I ventured to explore the bowels through the inguinal opening with a small-sized bougie, which I could easily pass, without any pain, for about four inches, in the direction of the symphysis pubis, but in no other; from which I concluded that a collapse of the bowels must have taken place, followed by adhesions. At my next visit I used an exploring needle, and managed to pass it, with a little gentle force, in the desired direction, though not without considerable pain to the patient. Having introduced the needle, I endeavored to dilate the parts, and succeeded so far as to be able to follow the course of the needle with the bougie, which I left in the bowel all day and night. Next morning I was informed that wind and a small quantity of slimy fæces passed per rectum. I replaced the first bougie by a larger one, which was also left in the bowel for twenty-four hours. On withdrawing it, an enema of warm water and turpentine was given; and the wound was dressed with the carbolic-acid lotion. At my next visit I was told that the patient had had a copious evacuation per rectum, without any pain. From this time the contents of the bowels regularly passed through the natural channel, and the wound gradually healed, till, in the course of five months, it completely closed, leaving no pain, nor any abnormality, with the exception of a little contraction of the skin.

Carbolic acid in this case proved of the greatest value as a disinfectant. Being the middle of summer, the heat was so intense that the effluvium and exhalations from the discharges, &c., contaminated and infected the atmosphere in the house to such an extent as to be altogether unbearable, and quite sufficient to create and propagate disease; but the acid, being freely used, charged every thing and every place with itself, so as to render the surrounding medium capable of being breathed with impunity. During the five months the wound was in closing, scarcely any pus was seen: so much for the acid, whether in confirmation of the chemical or the germ theory.

The bowels were, I believe, in such a condition, owing to collapse and consequent adhesions, that their contents could never again have been directed per rectum by any effort of nature. It shows how much good may be secured by timely interference, and how careful we should be in studying every symptom to bring our case to a happy issue.

(To be continued.)

HYDATID TUMOURS:

TWO CASES ILLUSTRATING SOME OF THE DIFFICULTIES IN DIAGNOSIS.

By H. T. Whittell, M.D.,

Hon. Medical Officer, Adelaide Hospital, South Australia.

Case 1. *Movable Hydatid Tumour in the Abdominal Cavity.*—B. H——, aged eighteen, admitted to the hospital Nov. 3rd, 1869; ailing two years; general health good; complains of a "hard lump" in the abdomen, which, when first felt, was about the size of an egg, but has continued to grow until it is now about the size of a man's fist. On examination, a tumour is readily felt beneath the parietes at the upper boundary of the right iliac region; it is globular, smooth, and when grasped by the hand gives the impression of a hard fibrous growth. It is painless, and can be easily moved about in any direction. The exact diagnosis of the case was difficult, but it was agreed in consultation that it was not advisable to interfere by any operative proceedings. The boy was therefore dismissed from the hospital, but was requested to show himself about every two months, so that we might watch the progress of the case. He accordingly paid us two or three visits, but on these occasions there was no perceptible difference, except that the tumour continued to enlarge. The patient presented himself again on June 23rd. The tumour was then about double its size in November. It could still be floated about as before. The lower portion was hard and unyielding; but, on careful manipulation, we thought the upper portion softer and somewhat elastic. I had from the first suspected the tumour to be hydatid, although its hard, fibrous-like feel seemed to tell against the diagnosis. Now, however, that a portion gave the impression of elasticity, I determined on making an exploratory puncture. I therefore caused the tumour to be compressed between the palms of the hands of an assistant, so as to force it towards the parietes, and make the skin tense just over the point of exploration. I then plunged a fine exploratory trocar into the tumour, and drew off through the canula a fine stream of clear hydatid fluid. We obtained about half a pint of fluid, in which we detected large numbers of echinococci. On withdrawing the canula, we could find no trace of the tumour. The lad was sent to bed, and after four or five days he left the hospital, without having experienced the slightest inconvenience from the puncture.

Hydatids are much more frequently met with in South Australia than in England. It is seldom that we have not cases under treatment in the hospital. The case just narrated presents some points of interest with respect to diagnosis. I have never before met with a tumour of this kind which could be so readily pushed about in different directions. In this respect it resembled a floating kidney to such a degree that, when the patient was shown at a meeting of the Medical Association soon after he first came under observation, some members thought we might have to deal with a movable kidney enlarged by disease. The hard, fibrous-like feel of the tumour was also peculiar and deceptive; so much so that I should now doubt whether I was not deceived in November through defective tactile sensibility, had it not been that all the gentlemen who saw the case agreed on this point.

The advantages and comparative safety of exploratory punctures in cases of supposed hydatids are well illustrated by the result in this case. This is a practice we commonly follow in the hospital. We never wait for adhesions, as insisted on by Trousseau and some writers of the English school, and, so far as I have known, the punctures have never been followed by bad results.

Case 2. *Hydatid in the Brain.*—On the 21st of May last I was requested by Mr. Carey, who was assisting me during the absence of my partner in England, to examine with the ophthalmoscope one of our patients who had been under his care during the previous five or six weeks. The patient was an intelligent-looking girl, aged about thirteen and a half years. She had never been strong, and about Christmas last she began to complain of headache and "a feeling as if something was moving in her head." Sometimes she could not see distinctly; her gait was noticed at times to be unsteady; and she occasionally had fits of vomiting. Febrile symptoms succeeded; and in February she was placed under the care of the homœopaths, who pronounced the case to be one of gastric fever. The child gradually became worse until April 9th, when Mr. Carey took charge of her.

The following is from his notes of the case:—"She complained of great headache, and vomiting. The bowels were constipated; pulse 100, quick and compressible; temperature 102°; right eye blind, pupil widely dilated. In the left eye vision was imperfect, and the pupil larger than natural. She was ordered mustard foot-baths, cold lotions to the shaven scalp, a turpentine-and-oil enema, and two grains of oxalate of cerium every three hours. On the following day, the bowels having been freely opened, the head was relieved, and the vomiting had ceased. She had had slight convulsions, and the left arm and leg were found to be slightly paralysed.

"On April 11th the left eye had become blind, and the paralysis was more marked. From this time she was treated with blisters to scalp, iodide of potash, and chinchona. She improved for a time, and some power returned to the arm and leg. She could sit up, and on one occasion she walked a little."

A few days after this Mr. Carey asked me to examine her. I found her thin and pale, but free from all febrile symptoms. The left limbs were paralysed, but her consciousness and intelligence were perfect. She was able to sit up while we used the opthalmoscope. Both eyes had lost all perception of light. The optic disc of the right eye had reached the stage of white atrophy; that of the left had the well-marked "woolly" appearance of optic neuritis, the margin of the disc was irregular, and a little below the disc were two or three white patches, not unlike what is sometimes met with in albuminuria; but on examination of the urine it was found free from albumen. My diagnosis was that the blindness was caused by intracranial disease, and that there probably existed a morbid growth on the right side of the brain. An hydatid cyst was mentioned, as well as syphilitic or tubercular deposits, as being sufficient to account for all the symptoms of the case.

At the latter end of May the child became worse; the headache, vomiting, and convulsions returned, and the patient died on June 11th. She retained her consciousness to the last. We were permitted to examine the brain on the following day. The cranium was very thin; the membranes of the brain thickened and vascular. On removing the dura mater there was seen peeping through the cortical substance of the upper part of the right cerebrum, to the extent of about half an inch square, a translucent membrane, through which fluid could be detected. We carefully punctured the membrane, and drew off about ten ounces of limpid fluid, in which the microscope revealed large numbers of echinococci. On cutting through the membrane we found a cyst about the size of a small orange. We were able to draw away the lining membrane entire, and on examination we found it studded with beautiful specimens of echinococci in various stages of development. The white substance of the right hemisphere had given place almost entirely to the hydatid cyst; the ventricles contained a small quantity of fluid. All the other parts of the brain were healthy. To the naked eye the optic nerves presented nothing abnormal.

Cases of hydatid tumours in the brain are few and far between. The one just narrated is reported on account of the early history and course being sufficiently complete to be of use in the diagnosis of similar cases. The student of cerebral pathology will also find points of interest in the connexion of symptoms with the well-defined lesion of tissue found after death.

While I have the pen in hand I wish to call the attention of microscopists to a peculiar appearance which, so far as I can ascertain in this part of the world, has not yet been noticed by observers in Europe. While examining the fluid from Case 1, about four hours after its removal from the body, I found several of the echinococci, with head and rostellum protruding, and still retaining vitality. Several groups were seen, each individual being attached to a portion of the germinal membrane by its funiculus. The contractile vermicular-like movements of these groups interested me, and while watching them I observed a rapid movement just at the point of junction of the funiculus with the germinal membrane. At first I thought this was a movement of nutrient fluids from the membrane to the echinococcus; it had very much the appearance, under a low power, of the transmission of fluids as seen in some plants. On further observation with higher powers and careful illumination, I arrived at the conclusion that the motion was caused by the rapid vibratile action of cilia-like processes attached to the hydatid at the point indicated. As the parasites became weak and died, the motion ceased, and I have not had an opportunity of repeating my observation. With Beck and Beck's 1-20 in. objective I obtained a fine view of the movements, but they were also distinct under the 1-8 in. and 1-5 in. glasses.

July, 1870.

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CLINICAL ESSAYS.

By T. Pridgin Teale, M.A., F.R.C.S.,

Surgeon to the General Infirmary at Leeds.

No. II.

ON THE SIMULATION OF HIP DISEASE BY SUPPURATION OF THE BURSA OVER THE TROCHANTER MAJOR.

There have been recently under my care in the Leeds Infirmary two instances of a disease, clear and distinct in its diagnosis, treatment, and results, and yet calculated to mislead by several points in which it imitates disease of a more serious character—viz., suppuration of the bursa which intervenes between the trochanter major and the flat tendon of the gluteus maximus which is inserted into the fascia lata. Although the affection cannot be of a very rare occurrence, and must be known to many surgeons, I cannot find any definite mention of it either in general works on surgery or in special works on joints, and not even a hint as to the importance of appreciating it in the diagnosis of hip disease. The nearest approach which I can find is caries of trochanter major, which I suspect may at times originate in the disease in question. The cases shall speak for themselves.

Case 1. (*Reported by* Mr. Enoch Snell.)—Patsey F——, aged twelve, a coal-pit worker, of good family history, and in excellent health till three months before admission, was received into hospital Oct. 2nd, 1868, suffering apparently from disease of the hip-joint. When in a state of nudity, whilst bathing, he attempted to run along a piece of timber, and, slipping, fell against the edge of the timber with his whole weight on the great trochanter. The blow caused severe pain, which shortly subsided and allowed him to limp slowly home, where he was confined to the house two or three days. He then resumed his work in the coal-pit.

At the end of a month asthenic inflammation set in in the region of the great trochanter, ending in suppuration, which continued to the time of his admission into the Leeds Infirmary.

Oct. 2nd.—He lay in bed, with all the appearance of hip disease, the thigh being flexed on the pelvis, and fixed so rigidly that any movement of the limb carried the pelvis with it. There was *no motion whatever* at the hip-joint, and on attempting to move the limb, pain was referred to the joint and trochanter major. There was wasting of the buttock, and over the trochanter major there was an ulcerated wound of the size of a florin, from which a sinus passed towards the bone. On the other hand, it was found that he could bear without flinching direct pressure over the joint, and indirect force by striking the knee or heel. There was no shortening of the limb, nor had there been pain in the knee. These negative points led Mr. Teale to suspect that the disease was not in the hip-joint, but probably consisted in necrosis or caries of the trochanter major. He decided therefore to put the patient under chloroform, with the double object, first of ascertaining whether or not the apparent rigidity of the joint was purely from muscular resistance, and secondly, should the joint prove to be sound, of enlarging the sinus and exploring the condition of the trochanter.

22nd.—Under the influence of chloroform all muscular spasm ceased, and the thigh-bone could be freely moved in all directions without in any way affecting the pelvis or indicating any rigidity or defect of hip-joint. Mr. Teale then enlarged the sinus, so as to introduce the finger, and found, instead of carious bone, that the disease was limited to the bursa by which the broad flat tendon of the gluteus maximus works over the trochanter major. The edge of this tendon, forming a strong band compressing the diseased structures, was freely divided transversely, so as to take off all pressure and tension, and the false membrane lining the bursa was freely broken up by the finger.

27th.—Has power of movement at the hip-joint.

Nov. 23rd.—Can walk well. Wound healing rapidly.

28th.—Out-patient; perfectly cured in five weeks after the operation.

CASE 2. (*Reported by* Mr. F. H. Drake.)—Michael D——, aged twenty-two, was admitted, under Mr. Teale's care, on Dec. 3rd, 1869, as a case of "diseased hip," and registered as such in the hospital books. There was a swelling over the trochanter major, rendering the outline of the process difficult to trace; and just below the trochanter there was a wound communicating with a sinus, along which a probe could be passed to a considerable distance towards the hip-joint. So far the case looked like one of morbus coxæ. On examining further, however, it was found that the movements of the joint were perfect, and could be accomplished without producing pain, though he had difficulty in crossing one leg over the other. Pain could be produced by heavy pressure over the trochanter major, but not by striking the heel or knee, nor by walking. There was no defect of gait; and no evidence of disease of spine.

The history of the case threw further light on the nature of the disease. He had been in good health until nine years of age, when he had scarlet fever, followed by dropsy, which confined him to the house nine months. One day during this illness, as his mother was lifting him out of bed, she struck his *right hip* against the arm of a chair. After this the joint (trochanter?) became painful and enlarged, and a large abscess formed on the outer side of the thigh, and was lanced about two inches below the great trochanter, giving exit to about a teacupful of pus. The wound then healed rapidly, and he was able to go to his work, at which he continued without intermission for four years. A second abscess then formed in the same position, which burst spontaneously; and he resumed his work in three weeks. Since then he has had a similar attack every year. A month before admission into hospital the same process commenced again, and the abscess burst in three weeks, and since that time has discharged a thin sanious fluid.

Mr. Teale, after examining the patient, decided that the hip-joint was sound, and that there was no evidence of disease of the spine; and stated his belief that the disease originated in suppuration of the bursa between the gluteal aponeurosis and the trochanter major.

Dec. 11th.—Mr. Teale enlarged the sinus, so as to be able to introduce the finger and explore the interior of the cavity. He found a cavity extending upwards and downwards about two inches, traversed vertically by the edge of the tendon of the gluteus maximus, under which the cavity extended. Having enlarged the wound, he divided *transversely* the gluteal aponeurosis, and thus relieved the trochanter and its diseased bursal structures from the perpetual pressure and friction previously exercised by the gluteal muscle. No sinus could be detected passing from the exposed cavity.

The wound healed without a drawback; and the patient was discharged on January 24th—a little more than six weeks after the operation.

To these two cases I will add a third, of the nature of which I am less confident. It resembles them, however, in so many points that I feel justified in coupling it with them, as being probably the same disease. This view was suggested to me by my colleague, Mr. Wheelhouse, several months after the patient left the hospital. Had it occurred to me to take this view at first, I might have obtained more complete evidence as to its nature.

CASE 3.—William A——, aged seventeen, of Stockton-on-Tees, was admitted on August 7th, 1869, with a large fluctuating tumour, extending over the upper third and outer side of the right thigh, of which he gave the following history:—Seven years before, he received a blow over the affected part—i. e., over the trochanter major,—which was followed by a swelling, which, having reached a considerable size, disappeared in a month, under the free use of blisters. Three years later the swelling again appeared, and again subsided under the same treatment, which this time extended over six months. Five months before admission the swelling appeared a third time, filling more rapidly than before, without feverishness, but attended by a dull aching pain.

On admission, there was found a fluctuating swelling, about seven inches in length by four in breadth, over the upper third and outer side of the right thigh.

Aug. 9th.—A pint of pus was carefully withdrawn by means of a trocar.

18th.—A second tapping, and removal of half a pint of pus.

Sept. 4th.—The abscess was opened by free incision, with escape of one pint of pus, and was carefully dressed with carbolic acid.

Nov. 9th.—Returned home, the wound being free from discharge and nearly healed.

Sept. 1870.—He has remained perfectly sound since the operation. He was lame and unable to walk well for about a month before admission to the hospital.

Remarks.—The foregoing cases agree very closely in several points.

1. All date from a *blow on the trochanter major*, rapidly followed by swelling in the situation of the blow.

2. In all there was absence of disease of hip-joint, although in one the simulation was so close that the point could not be decided until the muscles became relaxed under chloroform.

3. In the first two the family history, and personal history up to the time of injury, are good.

4. All three recovered rapidly after free opening of the diseased cavity; the first two most rapidly, in whom the gluteal bursa was relieved from pressure by division of the strong gluteal tendon. The third case recovered the most slowly, in which the gluteal tendon was not divided, owing to its possible bearing on the disease being unsuspected at the time of the operation.

The foregoing cases seem to point to the gluteal tendon as the great factor in keeping up the disease of the bursa, and to the division of this structure, so as to take off all muscular tension, as a cardinal point to be aimed at in operating for its cure. They also force upon me the reflection that possibly some of the cases of rapid recovery after the opening of supposed psoas abscess may have been instances of unrecognised disease of the trochanteric bursa.

Leeds, Sept. 1870.

REMARKS ON VERSION:

WITH A CASE IN WHICH THE PRESENTING ARM WAS WRENCHED OFF IN THE ENDEAVOR TO DELIVER.

By ALEX. MILNE, M.D., L.R.C.P.& S. Ed.

It is not very easy to say to whom, amongst obstetricians, the highest pæan ought to be awarded—whether to Paré, who taught the value of version; to Chamberlen, who gave us the forceps; to Desgranges, who rescued ergot from the women; or to Simpson, who introduced chloroform. For my own part, I rate Paré's work very highly, because I have found turning of incalculable value in the course of my practice, the most encouraging results being achieved by it. The forceps is, doubtless, one of the most invaluable instruments that was ever invented in connexion with our art; but, apart from its greater risks, as compared with version—that is, in high operations,—the unchallengeable fact remains that the hand, soft as the woman's parts themselves, will often succeed when the instrument utterly fails, and where the only other alternative is the sad one of craniotomy, which is of course, as regards the child, convertible with death. Of more than fifty cases of version in which I have been called to operate, in my own practice and in that of my brethren, six of them were of this nature—that is to say, the forceps were tried by dextrous hands, unsuccessfully, before the turning, which was successful, was resorted to. One of these cases, in which neither Professor Simpson nor myself could get the forceps applied, but in which I succeeded in turning, I reported in the *Edinburgh Medical Journal* for March, 1867.

Although version is the common proceeding in transverse presentations, in most cases of placenta prævia, in convulsions, flooding, &c., I believe it is not very generally resorted to in contraction of the pelvic brim. I may state that I am one of those who believe that it might be oftener adopted in such cases—that the bi-parietal diameter should be replaced by the narrower bi-mastoid,—in preferene to the more critical high forceps operation. I have much confidence in version in such instances—a confidence inspired by almost unvarying success. In reporting one of the more recent cases of difficult version which have come in my way, perhaps I may be allowed to state one or two points which are, in my opinion, conducive to success in this operation.

Turning, I need hardly observe, is, in ordinary instances, as simple as the application of the short forceps; but where the liquor amnii has been long drained away, and the parts have become tumefied and dry; where the uterus is in a state of extreme tonic spasm, and grasps the fœtus as in a vice, the case has deepened into one of considerable difficulty and danger. The operation may then even have become utterly impracticable, impelling to the unhappy alternative of perforation. The first thing to be done in such a case is, of course, to overcome the spasm. This should be most thoroughly done, otherwise we may be most effectually baffled. For this purpose resort was wont to be had to bleeding, to tobacco, or to opium; *now* we have the more efficent drug, chloroform. This I ply the patient with, on to most complete anæsthesia (I mean in such difficult cases), and thus, as a rule, the tetanic uterus relaxes, and entrance is permitted. I have seen one or two singular cases, where the chloroform failed to overcome the spasm; but these do not happen often. In such circumstances much help was obtained from tartarated antimony.* I repeat, to succeed, not to be baffled in these extreme instances, overcome the spasm in the most complete manner possible.

As regards the method of operating, I place the patient in the ordinary British left lateral position, with the nates brought a little beyond the edge of the bed, the knees well drawn towards the abdomen, the right one being well elevated. There is much difference among obstetric authors in reference to the most suitable hand to employ. Dr. Robert Lee, a most experienced author, recommends the right; the late Dr. Ramsbotham strongly urged the left; Sir James Simpson rather preferred the right; and Dr. Tyler Smith and Churchill also favor the use of this hand. As regards myself, I strongly recommend the left hand; and I may observe that I was in the habit of employing it before I noticed (which I did with much satisfaction) Dr. Ramsbotham's cogent reasons for preferring it to the right. The left has the following advantages:—1. It is usually rather smaller than the right (in my own case it is markedly so). The value of this is obvious. 2. The canal to be traversed is backwards, upwards, and somewhat forwards, and the left hand (and forearm) adapts itself to that curve much more easily than that of the right; that is, with the woman lying in the ordinary obstetric position. You cannot adapt the right hand and arm so well without bending the wrist backwards in an unnatural and uneasy degree. 3. The knuckles of the right hand hitch against the pubes, whereas in the case of the left they are received into the cavity of the sacrum. Lastly. In employing the left hand, the right is free to render important aid externally, either in the way of helping up the head or bearing down the breech. The influence of external manipulation is often very great. Dr. Braxton Hick's method—the combined external and internal plan—has superior advantages in some cases, such as in placenta prævia and convulsions, and I have reported† a few such where its value was undoubted; but where the uterus is in the tensely spasmodic state, and invests the contained body almost as closely as the egg is covered by its shell, it is utterly impracticable. But I have another plan of my own which I frequently adopt, and which might be termed the combined internal method. It is this: with three or four fingers you grasp a foot, or the knee, and make traction downwards, while simultaneously, with the index-finger and thumb of the same hand, you push the presenting part, whether shoulder or head, upwards. A more speedy revolution of the fœtus is thus often accomplished.

I now subjoin a brief report of the case referred to at the head of this paper.

On the 20th May last Dr. Groves of Trinity requested me to see a woman in labour there, who had fallen under his care on being abandoned by another practitioner after an ineffectual attempt at delivery. It was a case of twins, and the first child, presenting naturally, was delivered without trouble. The second was an arm presentation (dorso-anterior); and the person in attendance, after employing a great deal of force, wrenched the presenting arm completely away. Whether he made any attempt to turn or not previous to the exertion of so much misapplied force is not known, for he remained out of the way after his disastrous failure. Dr. Groves was called after this, and arrived about four hours after the arm was severed. He found the parts so terribly swollen and bruised, and the uterus in such a state of spasm, and encircling the fœtus so firmly and closely, that it was impossible to reach a foot. On my arrival, about twelve hours after the tearing away of the arm, I found the state of matters to be as follows:—Patient pale and exhausted; pulse rapid and feeble. On making a vaginal examination, I found the parts swollen and lacerated, hot, and besmeared with a dark discharge; the glenoid cavity, with a few ragged shreds of muscle surrounding it, presenting a little below the brim. Dr. Groves placed the patient deeply under the influence of chloroform, and I began inserting my left hand with the view of arriving at a foot. This was a laborious task, the hand having so little room to act, and being so firmly compressed between the uterus and the child. I had two or three times to stop my cautious efforts, in order to rest the arm; and more then once thought that I should have had to desist from the attempt to turn. In the course of twenty minutes or so, however, I was able to seize hold of a foot, and very shortly afterwards delivery was effected. The child, I need scarcely add, was dead. The woman succumbed after a few days, from sloughing of the vagina and exhaustion, undoubtedly due to the rough treatment she had experienced before the arrival of either Dr. Groves or myself. It is the first maternal death I have had after the operation of turning, and I think I may warrantably flatter myself that in this case the version was not the cause of it.

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* I have referred to this potent antispasmodic power of antimony, where chloroform failed, in my Manual of Materia Medica.

† Edinburgh Medical Journal, Nov. 1869

Edinburgh, Sept. 1870.

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A SUCCESSFUL CASE OF OVARIOTOMY.

By Robert Tassell, M.D., M.R.C.S.E.

The following interesting case occurred to a married lady, aged forty. She had always enjoyed very good health, with the exception of occasional attacks of hysteria. In October, 1869, she found herself increasing in size, and thought she was pregnant with her fourth child. From this time her health began rather to improve than otherwise until the 16th of January, 1870, when she was seized with a sudden attack of inflammation—so she informed me—in the bowels. For a period of two months she was confined to her bed and couch, under the care of a homœopath, who asserted his ability to disperse the tumour, assuming it to be a case of dropsy, by means of his remedies, but that no harm would accrue should it be pregnancy. He, however, suddenly disappeared about the middle of March, leaving the unfortunate sufferer to her fate.

It was at this time (March 19th) I was requested to attend. Her frame was much wasted, and the general health a good deal impaired; appetite not good; pulse 100, feeble. Her worn appearance much surprised me, seeing her about three months previous in such excellent health. Having made a manual as well as speculum examination of the uterus, I found that organ perfectly healthy and unimpregnated; catamenia present, but scanty and grumous-looking. The abdomen presented an enlargement, equal in size to that of a woman in the last stage of gestation. Abundant resonance on percussion over the colon in both lumbar regions, as well as high up in the epigastric; whilst in the umbilical and hypogastric there was great dulness and considerable resistance. No fluctuation perceptible. Upon firm pressure I could distinctly feel a depression upon the body of the tumour and towards its side; and this, with the above signs, aided me in coming to the conclusion that the disease was not only ovarian, but also multilocular.

Having expressed to the friends the serious nature of the disease, and the only remedy to be adopted, I desired that another opinion should be taken before having recourse to so formidable an operation as the removal of the tumour. This being obtained, and my own diagnosis confirmed, it was decided that the operation should be performed on the 26th of March; the patient's health in the meantime to be restored as much as possible by wine and nourishing food.

Our good intentions were, however, frustrated; for early on the morning of the 26th I was hastily summoned to the bedside of my patient, who, as the messenger informed me, had been taken suddenly worse, and was said to be dying. On my arrival I found her in a state of collapse, the face blanched and cold, as well as the hands and feet. Hot bottles, friction to the limbs, and hot brandy-and-water restored her in the course of an hour, although she had been at least two hours in a semi-unconscious state previous to my arrival, the delay occurring in having to cross the harbor—a distance of three miles. She subsequently told me that she felt a sense of suffocation suddenly come over her, and thought she was about to die; after which she recollected nothing until she became restored. Upon careful examination it was quite evident that one of the cysts had given way into the cavity of the abdomen. The contour of the walls was decidedly altered; there was less resonance, but now distinct fluctuation, the umbilical region being as hard and resisting as before. Of course the operation was abandoned for the present—indeed, I was under the impression she would not rally sufficiently to admit of it at all. Sickness and subacute inflammation set in, the latter yielding in the course of a few days to opiate enemata, and large linseed poultices sprinkled with laudanum.

Notwithstanding this grave misfortune her health soon began to improve, and she was enabled in the course of a fortnight again to resume her couch; and at the termination of a month, by means of wine, jellies, oysters, &c., she had nearly or quite recovered her former strength, so that it again became a question as to the desirability of the operation. Although there was some diversity of opinion and no little opposition to the course proposed from my medical friends, yet I was unwilling my patient should be left to her inevitable fate. It was evident the case had arrived at a turning-point. A slight nausea and a general uneasiness were becoming apparent. I therefore urged that the tumour should be removed without further delay, and the 28th of April was fixed upon for the operation, nearly five weeks from the bursting of the cyst.

Although the various steps of the operation were performed in accordance with the recommendations of Mr. Spencer Wells, yet it is necessary they should be briefly referred to here on account of the extreme interest of the case and the remarkable character of the tumour itself. The apartment being raised to a temperature of 72° Fahr., and hot water vessels placed about it, the patient was placed on an elevated couch, and chloroform administered. The bowels and the bladder having been previously relieved, and a slight breakfast partaken of. An incision was now made, six inches in length, in the median line, commencing about an inch and a half below the umbilicus. The tumour being exposed, and the ordinary ovarian trocar inserted, to my surprise no fluid made its escape. On withdrawing the instrument and introducing my finger, I found it necessary to enlarge the aperture in the tumour to about three inches, in order to break down and evacuate its contents. The arrangement of this parent cyst, for such it seemed to be, consisted in numerous septa or irregular cells, varying in size from a walnut to an egg, and containing a thick, grumous fluid, mixed with blood. Indeed, its appearance was that of an irregular honeycomb. These cysts or septa required to be forcibly broken down by the hand, and the fluid sponged out, before the mass could be dragged out. In consequence of this delay, and the fluid escaping into the cavity of the abdomen, it was necessary to enlarge the external wound by about two inches in an upward direction. The cyst being now emptied of about half of its contents, and another evacuated with the trocar, containing about two quarts of the usual ascitic fluid, the tumour itself was with some degree of difficulty drawn through the external incision. The clamp was now applied, and the mass finally removed. The cavity of the abdomen was thoroughly sponged out of its liquid contents, and the edges of the wound brought together. The pedicle was short, but I considered it advisable to fix it in the lower part of the wound on account of the highly congested state of the peritoneum, fearing further inflammation, and even suppuration, after sponging out about a quart of fluid. Steel acupuncture pins were now passed through at intervals of an inch and a half, and about an inch on either side of the wound, bringing the two surfaces of the peritoneum in contact, and steel wire, employed as in the operation for hare-lip, for keeping the edges of the wound accurately together. The pedicle was further secured by a pin, transfixing it in the wound, and a strong piece of whipcord applied as a ligature. Diluted carbolic acid was placed with lint over this and the whole length of the incision, and a hot fomentation of spongiopiline covering all the abdomen. A four-tailed flannel bandage, applied moderately tight, and subsequently an enema containing half a drachm of laudanum in half a pint of gruel, completed these arrangements. The time occupied in the performance of the operation and securing the wound and pedicle was one hour and a half, during which time the patient was wholly under the influence of chloroform, and remembered nothing from the time she entered the room until she found herself in bed, the room re-arranged, and myself and the nurse by her side.

I must here state that I received most valuable assistance from several of my medical friends who were present, which conduced much to the successful issue of the operation.

For the first three days the patient suffered from extreme prostration and frequent sickness. She took no nourishment; but was given a little rice-water to moisten the mouth, and a little sal volatile and water to allay the irritability of the stomach. About four ounces of beef-tea and gruel were administered twice a day per anum; the bladder being relieved by a catheter at the same time. On the third day the pins and clamp were removed, and the wound was found to have entirely healed without the slight suppuration. The stump of the pedicle gradually sloughed away, and all offensive odor was prevented by the application of the carbolic acid, which I think an excellent adjunct in preserving cleanliness and purity of the atmosphere. There was no appearance of inflammation, but, on the other hand, it was necessary to give her three or four ounces of brandy daily as a stimulant. Pulse 105, and very feeble.

May 5th.—Was now taking a little food. Bowels opened by enema. Altogether she appeared much revived. Pulse 100. Brandy, beef-tea, and jellies continued.

10th.—Lifted to her couch to have her bed made. From this date she continued rapidly to improve. The natural functions of the body returned. Got up every day for two or three hours upon the couch; and in one month from the date of operation was in the drawing-room taking her meals as usual.

June 8th (six weeks after operation).—Unable to stand as yet, but still gaining strength. Employs her time in knitting, reading, &c. Catamenia returned.

The principal features of this very interesting case are—1st. The previous debility, rendering the success of the operation to a certain extent doubtful. The excellent constitution of the patient, and the tone of her system, were, however, points to be urged in favor of the operation. 2nd. The nature of the parent tumour was entirely different from that usually found in ovarian disease. Having already referred to this, I may add, in conclusion, that before any of its contents were removed it could not have been less in circumference than an ordinary football. Under the microscope, the fluid presented a few nucleated cells.

Auckland, New Zealand, June, 1870.

NOTES OF A

CASE OF HYSTERIA, ILLUSTRATIVE OF ITS MORAL TREATMENT.

By Charles J. Cullingworth, M.R.C.S., &c.

The following case is placed on record, not on account of there being anything new in the plan of treatment adopted, but simply because it presents such striking evidence of the value of moral influence and persuasion in dealing with the class of hysterical cases of which it may be taken as a fair type—the class, I mean, which is mainly composed of delicate, sensitive girls, who are constitutionally prone to develop the very diseases of mal-assimilation which their cases often simulate, and whose treatment consequently has to be conducted with caution and gentleness as well as great firmness.

Eliza C——, aged twenty-six, residing with her mother in Kirkgate, Leeds, was placed under my care in March, 1864. She had been delicate from birth, though never seriously ill up to the time of her going into service, at the age of sixteen. The work of a servant proved too much for her strength, and in October of the following year she gave it up, and came under the care of the late Mr. Radcliffe, the Poor-law district officer. At that time (October, 1855) she was suffering not only from great debility, but also from constant headache, and from paroxysms of pain at the stomach, frequently accompanied with vomiting, and occurring at all hours, without reference to the times of taking food.

The history of the next nine years is just the history of the ineffectual treatment of a confirmed invalid for supposed ulcer of the stomach. Leeches, blisters, and issues in abundance to the epigastrium, repeated change of air and change of doctor, rigid dieting, and drugs innumerable, were tried, until finally the case was given up in despair, and for the two years previous to my seeing her she had scarcely received any treatment at all.

In March, 1864, she was transferred to my care, as being at that time senior pupil to Mr. Beardshaw, Mr. Radcliffe's successor. Her condition was as follows:—She was pale, thin, and delicate, with a resigned and languid expression. She had been confined to bed for five years, and for three years had been unable to step on the floor. During the day she sat up in bed reading or sewing, and was occasionally taken out of doors in an invalid's chair. She was scrupulously clean and tidy both in her person and her surroundings, and received much sympathy and attention from the clergy of the parish church and their lady visitors. The lavish decoration of the walls with illuminated texts bore witness to the frequent visits of the latter.

There were no physical signs of disease in the organs of the chest and abdomen. She complained of pains in the epigastrium and left hypochondrium, variable in character, and fitful in their duration and time of appearance. There was constant nausea, with frequent vomiting. On some days she rejected everything, and on other days she did not vomit at all. At each catamenial period all these symptoms were aggravated. The bowels were confined; appetite poor; menstruation regular and somewhat profuse.

At first I took for granted the diagnosis of her many previous advisers, and proceeded to treat the case accordingly, with the effect of shaking my faith in the efficacy of every remedy I tried. On June 17th, when she had been under my care for three months, she first complained to me of peculiar creeping and pricking sensations along both arms, and aching of her finger-joints, with a sensation of choking sufficient sometimes to prevent her from swallowing her pills; and then it was that I was led to see clearly the true nature of the whole case. I now confidently assured her that she would certainly recover if she would but second my efforts.

The first thing to overcome was the vomiting. I ordered her the following draught every four hours, and told her it would have so speedy an effect upon the vomiting that in a few days the medicine would be invariably retained:—Dilute hydrocyanic acid, two minims; tincture of valerian, thirty minims; aromatic spirit of ammonia, fifteen minims; water to half an ounce. In a week she was able to take her medicine without its causing sickness, and the pain in the left side was much less.

I daily cheered her with fresh assurances that certain articles of diet would now be found to cause neither nausea nor vomiting, that old-standing pains would gradually leave her, and that new ones would be short-lived. The stomach symptoms abated, and on July 15th I desired her to be dressed and to to sit up for a short time, remaining up rather longer each succeeding day; and I ordered her the following pill three times a day: Sulphate of iron and disulphate of quinine, of each one grain; extract of lettuce, two grains. She received at first a little help in dressing, but presently I told her that she was now strong enough to dress herself, and she managed to do so. I then gave my attention to her walking powers. I desired her to stand upon the floor, encouraging her at first by allowing her to take hold of my hands, next time of my fingers, and then of one finger only, until she summoned courage to stand without help at all. The next step was to urge her to try to walk across the room, which was accomplished gradually, like the former lesson. Day by day I went to put my patient through her exercise, and day by day I was rewarded by being able to note a gain in her strength of will.

August 10th (nearly two months after commencing the treatment.)—Vomiting occurs but very seldom, and without premonitory pain. She is strong, dresses herself daily, and sits up all day. She is now able to walk across the floor, lightly holding one's hand.

Sept. 13th.—She has gained flesh, and looks quite cheerful and hopeful. She can walk slowly across the room by the aid of a walking-stick. I ordered the prussic acid mixture to be discontinued, and a table spoonful of Griffith's mixture to be substituted for the pills.

Gradually the walking-stick was thrown aside, by allowing her at first to carry it in her arms ready for an emergency, and so convincing her that it could at length be dispensed with.

Nov. 1st.—My note-book says: "She can now walk erect, and without any assistance, slowly across the room; and has walked up and down stairs with no other aid than the balusters. She has gained flesh, and lost all pain and sickness."

Dec. 7th (nearly six months after commencing treatment).—The record states that "she takes a little walk out of doors every day without help, and to-day has walked a distance of at least a mile."

Soon after this time I left Leeds, and my next note occurs after an interval of more than three years.

May 1st, 1868.—"I have seen Eliza C—— to day, and find her earning her own livelihood. She finishes woollen shirts at her own home. She is well and in good spirits, and very grateful for what has been done for her."

July 9th, 1870.—I sought out my old patient, who is now living at the Armley School-house, near Leeds, having been provided with rooms there through the kindness of the vicar. She still maintains herself by sewing. She is extremely active and light-hearted, and looks stouter and healthier than I have ever seen her.

Such is a brief account of a case which, I think, may be safely left to point its own moral. I may just remark that I only regarded the administration of medicine as a useful auxiliary, and as a help to the patient's faith. Her complete and permanent recovery was due, above all, to the gradual imparting of my own confidence to her, so that the weakened will was, little by little, brought under her control again. Of course, such a plan requires of the attendant an immense expenditure of time and patience. But this cannot for a moment be weighed against such a result. Is it not indeed worth a far more serious sacrifice to rescue a patient from a cheerless and purposeless existence to the enjoyment of a life of healthful activity and independence?

Manchester, Sept. 1870.

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CLINICAL REMARKS

ON THE

ACTION OF BELLADONNA IN ARRESTING NOCTURNAL INCONTINENCE OF URINE.

By J. Burney Yeo, M.B.,

Assistant-Physician to King's College Hospital.

There are one or two facts in therapeutics which are extremely encouraging to those who believe, as I do, that medicines generally have a very important influence in modifying or arresting disordered conditions of the bodily organs. They serve also as an antidote to that widely-spread scepticism with regard to the value of medicinal agents in combating disease, which is as irrational as was the excessive credulousness which formerly existed on this point, and to which our modern incredulity probably owes its origin.

Of such facts, the action of belladonna in arresting nocturnal incontinence of urine is one of the most remarkable, especially when its operation can be witnessed in such cases as the following.

The conditions which give rise to this distressing symptom are most commonly observed in young children; but the cases which form the subjects of these remarks were persons who had reached the age of puberty, and this circumstance has enabled us to analyse the mode of action of the remedy in a manner which would have been difficult with younger patients.

The first case was that of a young man, sixteen years of age, an apprentice as a compositor, who became an out-patient at the hospital about two months ago, complaining of nocturnal incontinence of urine. He was a thin, delicate-looking boy, with a hectic flush on his face; and he manifested in a marked degree that *shamefacedness* and mental distress which so embarrassing an infirmity may well produce. The accident happened every night, and had persisted ever since his infancy. He was ordered to take five minims of the tincture of belladonna, with ten minims of the tincture of the perchloride of iron, three times a day, and to avoid drinking any fluid for some hours before bedtime. After taking this prescription for a week, he reported himself as only slightly better; he had passed urine in bed three or four times since he had taken the medicine. He was ordered to take ten minims of the belladonna tincture instead of five. This reduced the frequency of the accident to first once in seven days; then once in about fourteen days: and, on increasing the dose to fifteen minims, once in three weeks. With the latter dose he took no steel, as his general condition had improved marvellously. There had been, so far, little or no alteration in the dimensions of the pupils, and vision had been in no wise interfered with; but on the recurrence of a slightly increased frequency of the incontinence, he was ordered twenty minims of the tincture of belladonna three times a day. The nocturnal incontinence now completely ceased, but the vision became so indistinct that he could not "read his copy." He was therefore ordered to take only one dose of twenty minims in the twenty-four hours, and that at bedtime. He continues quite free from a return of the complaint. This patient had never suffered from any irritability of the bladder by day, and had no occasion to pass water more frequently than other people.

The next case was that of a girl, also between sixteen and seventeen years of age, who had similarly suffered ever since her infancy from nocturnal incontinence of urine. She came to King's College Hospital as an out-patient on March 5th last, and at that time she was nightly passing her urine in bed. She was living in the country, and was a fresh-looking, healthy, and robust young woman; but her mental distress and embarrassment were extreme. This wretched malady unfitted her for going into service, might be justly regarded as an impediment to marriage, and altogether made her life a misery. She was put on the same kind of treatment as the preceding case, exept that she at once commenced taking ten minims of the tincture of belladonna thrice daily, and she was ordered no steel, as her general condition was good. For the first week little or no improvement was manifested; the dose of belladonna was therefore increased to fifteen minims, which dose she has continued to take ever since. The incontinence rapidly abated, and now scarcely ever occurs. Her appearance and manner have at the same time undergone an entire change; a bright and cheerful aspect has replaced a taciturn, morose, and discontented mien. She has, for nearly a month, been engaged in a situation as a domestic servant, for which she voluntarily applied. Here, then, is a remarkable instance where the whole course and prospects of a life have been rapidly changed by the administration of a few minims of a vegetable tincture!

Let us now inquire, What is the pathological condition which in these cases gave rise to this symptom; and in what manner has the belladonna acted in overcoming it? I apprehend that a weakness or atony of the sphincter muscle of the bladder was at the root of the evil in each case. There was no irritability of the bladder leading to frequent micturition by day in either case, nor was there any abnormal condition of the urinary excretion.

We know that the involuntary action of the sphincters can be supplemented and strengthened, when necessary, by voluntary effort. It is therefore probable that, during the waking hours, a very slight amount of voluntary effort is superadded to the involuntary contraction of the sphincter vesicæ, and the urine is thus prevented from escaping from the bladder. But during sleep this voluntary effort is in abeyance, and so soon as the accumulation of urine becomes sufficient to stimulate the detrusor fibres to contraction, the weak sphincter gives way, and the bladder is evacuated in bed. I imagine that the belladonna, acting it may be through the sympathetic nerve fibres, strengthens the involuntary efforts of the sphincter-fibres at the neck of the bladder, and thus prevents the nocturnal incontinence. In each of the cases I have alluded to, there was the additional difficulty in treating them, as I remarked at the time, that we had to overcome an inveterate habit. The bladder had acquired during fifteen or sixteen years the habit of discharging its contents during the night. Now in the girl's case we had a striking example alike of the influence of habit and of the efficacy of the remedy. The habit prompted the bladder to empty itself during the sleep: remedy, producing firm contraction of the sphincter, resisted this effort; the sum of the two opposing influences was sufficient to wake the patient out of her sleep every night, at first two or three times, now only once, when she has to yield to the force of habit, and gets up to pass water. This circumstance points, I think, clearly to the fact that the action of the belladonna influences, directly or indirectly, the contractile force of the sphincter of the bladder. Its efficacy cannot be due to its diminishing any irritability of the bladder, for none exists; during the day-time the bladder distends to quite as great an extent as is common. It cannot be due to its checking the secretion of urine, because quite as much urine is secreted now as formerly. Neither can it be due to its altering the character of the secretion, which has never been other than natural. We conclude, then, that the efficacy of belladonna in relieving nocturnal incontinence of urine is owing to its influence in giving tone to the weakened sphincter vesicæ. This observation is in harmony with the statements which have recently been made as to the action of belladonna as an aperient by promoting the peristaltic contractions of the involuntary muscular fibres of the intestinal canal. But the most valuable comment that I can make on these two cases is, "Let them teach us not to despise the influence of medicines or the study of therapeutics." So long as we know of a few medicines which possess such remarkable curative powers, we are encouraged to believe that by searching we shall discover more.

St. James's-street, S.W., Sept. 1870.

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ON

THE APPLICATION OF PRESSURE TO THE UTERUS IN CASES OF LINGERING LABOUR.

By W. S. Playfair, M.D., F.R.C.P.,

Assistant Obstetric Physician to King's College Hospital, and Senior Physician to the Evelina Hospital for Sick Children.

In 1856 Von Ritgen suggested the employment of external pressure on the uterus as an adjuvant in cases of powerless labour. In 1867 Kristeller carried the suggestion into practice, and published a number of cases in which he had found it of use.

The object was to *push* the presenting part through the pelvic canal in cases in which the forceps would otherwise be required to *pull* it through; to apply, in fact, a *vis a tergo* instead of a *vis a fronte.*

This proposal has met with but little attention in this country; and the only author who, as far as I know, refers to it, is Dr. Barnes, in his recent admirable work. He says with regard to it: "This resource, then, should not be lost sight of. In certain cases it may obviate the necessity of using the forceps; or it may stand you in good stead when instruments are not at hand."

It is certain that the advantages to be derived from external pressure are not yet widely known or recognised; and as I have now received very material assistance from it in many cases of lingering and powerless labour, I believe it may not be without interest to state briefly the result of my experience on this point, especially as I do not know of any published cases in this country in which its use has been described.

The class of case in which external pressure is likely to prove serviceable is of very frequent occurrence—viz., in which the presentation is natural, and the pelvis roomy, but in which delivery is retarded simply from deficiency or absence of uterine contraction. These are the cases in which resort to the forceps is so often essential, in which the head has passed well into the pelvis, possibly descended as low as the perineum, and in which apparently but one or two good pains are required to complete the delivery.

Firm pressure, applied under such circumstances, may act in two ways: First, and most commonly, it may merely stimulate the sluggish uterus to increased exertion, just as firm pressure after delivery will cause a relaxed uterus to contract. In this way, pains that are feeble and ineffective may be rendered strong and useful, and a natural termination may result when artificial assistance might otherwise be required. I have of late been frequently in the habit of thus stimulating the uterus, and I feel certain that I have in many instances greatly shortened the progress of a labour that threatened to be long and tedious. It is, indeed, often curious to observe how rapidly the pains increase in force and duration, under the stimulation of gentle and steady pressure at the commencement of each pain. The following case may be taken as a good example of the beneficial effect of pressure applied in this way.

——, the mother of several children, about thirty-five years of age. Labour commenced at noon on the 23rd of February, 1868. The pains were at long intervals, feeble, and of short duration. At 3 A.M. on the morning of the 24th the membranes had been ruptured for several hours, and the os was fully dilated. The pains were now more frequent and regular, but they had no effect in causing the head to pass through the brim. It remained partially engaged, but always receded in the intervals between the pains. After waiting for some time, it seemed as if the forceps would be required. Von Ritgen's method was now tried. The patient being laid on her back, and the hands being spread out on the sides and fundus of the uterus, firm downward pressure was made in the axis of the brim at the commencement of each pain. The good effects of this manœuvre were very striking. The first pain was manifestly increased in strength and duration, and the head was felt to advance decidedly as it was pushed down. The contractions now increased greatly in force, and in about six pains the head was expelled. It was in the third position, and the rotation of the occiput forwards was readily made out as it descended. The child was of immense size, and living. The mother made a good and rapid recovery.

This may be taken as a typical example of the most usual effect of pressure—viz., to stimulate the uterus to increased exertion; and I believe it to be a far more effective and safe agent for this purpose than ergot. Secondly, it is sometimes possible to push out, as it were, the fœtus in the entire absence of uterine pains. I presume that cases suitable for this must be rare, and that, as a rule, extraction by the forceps is to be preferred. Still the following case may be taken as proving the possibility of occasionally effecting delivery in this way.

——, aged twenty-five, a lady of great delicacy of constitution, was pregnant of her third child. She had suffered a good deal during gestation, was immensely distended with liquor amnii, and for some months had been almost entirely confined to her sofa. Her labour commenced on the 10th of August, 1870. During most of the day she had feeble pains, and at long intervals. At 10 P.M. the os was only slightly dilated, and the head was felt to be presenting. The pains got somewhat stronger at 3 A.M., and at 4 A.M. the membranes ruptured, an enormous quantity of water being discharged. At 6 A.M. the os was fully dilated, and the head was engaged in the brim in the first position. The pains were now scarcely worthy of the name. At short intervals there was a barely perceptible hardening of the uterus, which disappeared almost as soon as it was felt, and had no appreciable effect on the presenting part. I was informed that ergot had been administered with advantage in a former labour, and I gave her a full dose without any good result. After waiting till 11 A.M., I began to despair of any progress. The slight contractions previously felt had disappeared, or nearly so, and I made up my mind to apply the forceps.

The husband, however, objected so strongly to any instrumental interference that I determined to try the effect of pressure, although, in the absence of uterine contractions, I scarcely expected any beneficial results.

Spreading the hands over the uterus in the usual way, I made firm downward pressure at intervals of from five to ten minutes. The effect was more favorable than I had anticipated. With each application of the pressure the head was felt to descend, and in about three-quarters of an hour it was distending the perineum. Now for the first time some slight contraction was felt, and the head was soon expelled. The child was born alive, and the mother made an excellent recovery.

A case of this sort is no doubt quite exceptional, and I should generally prefer under such circumstances to apply the forceps. Still it may serve to illustrate Kristeller's statement that external pressure alone is capable of effecting delivery. It is, however, as an adjuvant in cases of lingering labour, and as a means of stimulating a feebly contracting uterus, that pressure promises to be of service. I need hardly add, by way of caution, that gentle but firm pressure in a proper direction is to be used, and that all rough handling of the uterus is to be avoided. The pressure can be most readily applied with the patient lying on her back, but this is by no means essential, and I have constantly used it in the ordinary position on the side, and without disturbing the patient.

Curzon-street, Mayfair, Aug. 1870.

ON THE TREATMENT OF TETANUS BY WOORALI, CALABAR BEAN, AND CHLORAL HYDRATE.

By Lawson Tait, M.R.C.S., &c.

There is a characteristic of medical literature which is a painful one, and which must greatly retard the development of our art into a science—the small percentage of failures which are published in ratio to the published cases of success, both of operations and of the administration of remedies. It is very natural to suppose that men do not like to make known their failures; but if they were more frequently made public, I am quite sure much more would be learned from them than would compensate for the trifling uneasiness their exhibition would give rise to. One hears every now and then of a case having occurred in such and such a hospital, where some peculiarity in the case—say of ovariotomy—rendered it unsuccessful, through no fault of the surgeon's; and yet we too seldom get accounts of these valuable cases. Perhaps there is no disease about which men rush more ardently into print than tetanus; a single case often constitutes a paper, and from it other practitioners are led to use the vaunted remedy, only to meet with disappointment, and few record it. It has been my misfortune to see a good deal of tetanus, and I have tried many remedies, but always with the same result. If the patient lives over the twelfth day of the disease, he is almost certain to recover, whatever be the treatment. The acute cases terminate in from twenty-four hours to three days, and nothing seems to help them in the least; except perhaps that chloral hydrate gives them an easier death than they have without it. The last three cases of acute tetanus which I have seen I have treated severally by woorali, Calabar bean, and chroral hydrate. The results have been unsatisfactory as usual, and in the first case I believe that death was, if anything, hastened by the treatment. In these cases elaborate notes were taken of temperature, pulse, &c.; but as they reveal nothing not already well known, they are omitted.

Case 1.—Roger P——, aged fourteen, five days ago had one of his little fingers crushed by machinery, and amputated on the third day after the accident.

March 18th.—Indications of commencing tetanus. From 4.20 P.M. subcutaneous injections of a solution of woorali were repeated at intervals of ten minutes, beginning with one-twentieth of a grain, and ending at 5.15 with a dose of two-fifths of a grain, without any effect having been produced.

19th.—10.15: Symptoms more severe; half a grain injected. No effect having been produced in fifteen minutes, another half-grain was injected, and five minutes had scarcely elapsed before a violent tetanic convulsion affecting the arms and muscles of respiration destroyed the patient. It is impossible to say how far the drug had acted in producing the last and fatal convulsion; but if it is to produce a good result in tetanus, and according to its physiological action, it ought to have a different effect.

Case 2.—James C——, aged forty, on December 10th had his hand drawn into a hay-cutting machine driven by water power; and before the machine could be stopped, the hand was slowly chopped off, in lengths of about a quarter of an inch, as far as the basis of the metacarpal bone. There had been no bleeding, and the stump was placed in a carbolic bath.

On the evening of the 18th he complained of his throat being stiff, and of slight difficulty in swallowing.

Dec. 19th.—10 A.M.: Distinct trismus. Injected half a grain of the extract of the Calabar bean.—11.15 A.M.: Injected two-thirds of a grain.—1 P.M.: Injected half a grain, as he felt his jaw less stiff. My supply of the bean was now exhausted, and I had to wait till the

20th, at 9.45 A.M., when I injected one grain of the extract. He was suffering much from opisthotonos, and from the profuse diaphoresis so often seen in acute tetanus. At 1 P.M. the muscles of respiration were much affected, and I injected a grain and a half. At 3 P.M. he was no better, and I injected two grains. He died at 5.30 P.M. from sudden spasm of the respiratory muscles.

CASE 3.—Jude B——, aged thirty-two, was attacked by acute tetanus on the 28th of April, six days after amputation of the thigh.—8 A.M.: Gave him thirty grains of chloral hydrate, which had no effect, and was repeated at 9 o'clock, after which he went to sleep almost immediately. He awoke at 12 o'clock, when some nourishment was administered, and the dose of chloral repeated. The nurse was ordered to repeat the dose as often as the effect passed off, after administering what food and wine the patient could take.—4 P.M.: Nurse reported that when he awoke the difficulty of swallowing was very great.—At 9 P.M. I saw him awake, and found opisthotonos well marked. The treatment was continued during the night.

At 8 A.M. on the 29th he was much worse, and evidently sinking. At noon, when he awoke, it was quite impossible to get him to swallow anything, and the episthotonos was very severe. A nutrient enema, containing forty-five grains of chloral, was therefore administered. I saw him at 4 P.M., when he was partially conscious, and he gradually sank till he died at 5.30.

In these cases it cannot be said that the treatment was of the slightest use, except that in the last case the chloral saved much suffering both to the patient and his friends. This could be formerly done with chloroform, but with much more trouble, and with no more satisfactory result. I fear that even chloral is not to prove of the value in the treatment of this terrible disease which some of the members of the French Academy recently predicted for it. The other two drugs are still more useless.

Wakefield, Aug. 1870.

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ON

HYPODERMIC INJECTION OF QUINIA IN AGUE.

By G. GODDARD ROGERS, M.D.,

Senior Physician to the West London Hospital, Etc.

IN April last my friend Mr. W. J. Hodgson, of Sutton St. Mary, had a conversation with me on the desirability of trying subcutaneous injection of quinia in the somewhat numerous cases of ague occurring in his district. We agreed that it was useless to operate with a salt requiring any other solvent than distilled water; and from Messrs. Bullock and Reynolds I procured a neutral sulphate of quinine which fulfilled this requirement. The results of several trials of this preparation were to be forwarded to me; and Mr. Hodgson has since kindly expressed a wish that I should make what use I please of his communication.

CASE 1.—The first case was that of a lad fifteen years of age, who had suffered from ague for nearly seven months, and was very much out of health. The tongue being loaded and the breath very foul, an emetic was given on the 23rd of April. Twenty minims of a solution of the neutral salt above named, containing two-thirds of a grain, were injected on the 24th, 25th, 27th, and on the 2nd, 3rd, and 6th of May. He was not cured, but got very much better by the last date, and Mr. Hodgson then lost sight of him.

CASE 2.—The patient was a man suffering from ague since the harvest of last year, and who had also been treated for severe lumbago during three or four months of the winter. Very little relief was obtained until the injection of quinia. The ague and rheumatic pain then seemed to leave him, as if by magic; and, whereas he could not formerly stoop to lace his boots, he soon was able to walk, several times in May, more than seven miles, to see his doctor.

CASE 3.—A woman, aged thirty-eight, of hæmorrhagic diathesis. Great difficulty was experienced in introducing the solution, as every puncture bled freely. At last, a trial was made without loss of blood by punctures over the scapulæ. The remedy acted favorably, and all signs of ague disappeared. The dates and number of injections are not recorded.

CASE 4.—June 10th: A man, aged sixty-four, lying apparently very ill in bed in the hot stage of a bad attack of ague. The wife stated that he had it badly on the 6th and 8th. An emetic was given, and the next day (11th) thirty minims of the solution of neutral or soluble sulphate of quinine were injected. As the patient lived at some distance, the doctor could not call until the 13th. He found that the man had gone to work. A message was left, desiring him to come to the surgery in the the evening. Thirty minims, containing one grain, were then injected into one arm, and twenty into the other. The next day the patient remained at home, feeling "knocked up"; but on the 7th July his wife reported that he had been hard at work every day since the 15th June, and was as well as ever she knew him.

CASE 5.—A well-grown girl, eighteen years of age, had tertian ague for seven weeks. The medicines given relieved her for six days; but on June 11th she was worse than ever. Thirty minims of the neutral quinine solution were injected into the arm, and it was to have been repeated on the 13th; but for some unavoidable reason it was postponed. On the 16th she looked as well as possible, and her mother said she had never worked better about the house.

CASE 6.—On June 26th a man who had suffered from tertian ague for six months or more was injected with thirty minims of the solution. It was repeated on the 28th and 30th, but the result was not satisfactory; at least the ague was only modified, not cured.

In looking over these cases, few in number, and briefly recorded, one prominent fact comes out which is of real practical importance. When a practitioner is located in an ague-engendering district, he finds that the bulk of his patients are not unlikely to suffer from a supplementary attack of *horripilatio* on the appearance of the bill at Christmas, which must be a heavy one if three or four members of a family have had to be supplied with mixtures containing sulphate of quinia during several months of the year. And here let me not be supposed to mean by the sulphate of quinia of the British Pharmacopœia, the salt supplied by Messrs. Bullock and Reynolds. The former requires ten minims of diluted sulphuric acid to form a perfect solution of ten grains in half an ounce of water, whilst the latter is soluble in distilled water, and its introduction by the syringe gives rise to no smarting or prolonged tenderness.

Case 5 is rather an astonishing one. The malady had proved obstinate, and the girl looked extremely ill in the intervals, and could do no work. Yet the injection of one grain of quinine seems to have produced a beneficial effect, which a long course of medicine administered internally could not accomplish. But it must not be supposed that the hypodermic treatment will supersede the exhibition of the various preparations of bark or arsenic; and perhaps the best conclusion to which one can come is that injection of quinia used early, and at the commencement of uncomplicated ague, is invaluable as a remedy; but that it will often fail when tried in long-established cases, where there is hepatic or splenic complication.

Grosvenor-street, W., Oct. 1870.

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NOTES OF A FATAL CASE OF METASTASIS TO THE DURA MATER OF THE BRAIN DURING ACUTE RHEUMATISM.

By Henry Priestley, L.R.C.S. Edin. &c.

Cerebral metastasis, though a universally recognised termination of rheumatic fever, is yet, I think, sufficiently rare to warrant me in recording a case which has just come under my observation in private practice.

On the 18th August I visited for the first time Mrs. W——, a pale, anæmic, delicate-looking woman, aged twenty-seven, who complained of severe pain in one knee, with exacerbations at night. On examination, it was found to be somewhat hotter than natural, and slightly swollen. Inquiry elicited no history of exposure to damp or cold, or of any previous attack. The pulse was soft, and about 90; no great thirst, and no acid perspirations. The case looked like one of idiopathic synovitis, being confined to one knee; but rheumatism was suspected, and the patient put upon five-grain doses of iodide of potassium three times a day, with a one-grain opium pill at bedtime, and the joint ordered to be enveloped in cotton wool and oiled silk.

According to expectation, the disease developed itself unmistakably in a few days, attacking the other knee and then the ankle-joints. The heart did not become implicated, and the fever was of a mild type. The patient was seen daily up to the 23rd August, and, no unusual symptoms presenting themselves, a favorable prognosis was given on that day in answer to inquiries from the patient's friends.

At 6 o'clock on the following morning I was summoned in great haste, and on my arrival, to my surprise, found my patient comatose, and *in articulo mortis*. Her husband told me that up to 3 A.M. his wife had been very restless; that the pain had then suddenly left her joints, which she stretched out in corroboration of her statement, and expressed her belief that she should soon be better; she then dropped off to sleep, and though he noticed that she snored loudly he did not think anything of it until, at daybreak, he saw her ghastly death-like features and fixed eyes, when he hurried off at once for me.

No autopsy was permitted, therefore we can only surmise what was the state of affairs within the cranium. I hope that the history of the above will be of interest and service to young practitioners, and caution them to be wary of the prognosis they give in apparently uncomplicated cases of acute rheumatism.

Glossop-road, Sheffield, Sept. 1870.

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REPORT OF

TWO OPERATIONS PERFORMED UNDER THE INFLUENCE OF NITROUS OXIDE GAS.

By W. Haslam Davis, M.R.C.S.

The inconvenience arising from the long time needed to produce anæsthesia by chloroform, and the sickness following its use, cause surgeons frequently to perform brief yet painful operations without it. For these reasons I have usually operated for fistula, and amputated fingers, without chloroform. But, having a nervous patient who required the operation for fistula in ano, and could not "screw his courage to the sticking point," I determined to try the effect of nitrous oxide gas. Mr. Crapper, a dentist of this town, who makes, and uses extensively, the gas, gave me several opportunities of seeing it used; and by these I was convinced of the practicability of producing by it insensibility to pain, for a short time, with safety. Mr. Crapper kindly administered the gas, and in two minutes from the application of the inhaler the patient awoke, unconscious that he had been cut, and with his wound dressed.

Shortly after this, I found it needful to amputate a middle finger for necrosis of several months' standing, and again obtained the assistance of Mr. Crapper. In this instance, one inhalation sufficed for the removal of the finger and the head of the metacarpal bone, which proved to be diseased; and after a short interval, during which the hæmorrhage was controlled by the use of cold water, the gas was again given while the wound was stitched up. On recovering his consciousness, the patient said he felt quite well, but wished his finger were off. He had not felt the operation at all. I must state that there was a good deal of muscular spasm, so much as to render it necessary to have the hand firmly held.

In each case there was an absence of sickness after the administration, and the digestion was not disordered.

I think that for the minor operations, and those which can with certainty be done quickly, nitrous oxide gas is much to be preferred to chloroform; but in operations like herniotomy, where it is most desirable to have muscular relaxation and perfect stillness, I should continue to use chloroform.

Hanley, Staffordshire, July, 1870.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

KING'S COLLEGE HOSPITAL.

REMOVAL OF A FATTY TUMOUR.—DIVISION OF FISTULA IN ANO.—PLASTIC OPERATION FOR THE CURE OF EPISPADIAS.—CLINICAL REMARKS.

(Under the care of Mr. WOOD.)

ON Sept. 17th. Mr. Wood removed a fatty tumour from the shoulder of a woman a little above middle age, divided a fistula in ano, and performed one of a series of plastic operations for the cure of epispadias in a lad about thirteen years of age.

In the removal of the tumour Mr. Wood said that he had observed certain precautions, some of which had prolonged the operation to an extent which might at first sight seem unnecessary. These had been: First, to devote special care to the dissection of the tumour from the skin, to which it was very firmly attached, though only loosely connected with the trapezius; otherwise button-holes might have been made in the skin. Secondly, the tumour having several tails burrowing in different directions, it had been necessary to ensure that no portion remained behind to form the starting-point of a new growth;, neglect of this precaution led some people to believe in recurrent lipomata. Another danger to be averted was suppuration of the exposed surfaces; with this object torsion had been employed instead of ligatures, wherever the former method was applicable, in order to avoid as far as possible the irritation liable to be produced by threads; and the part had been dressed with chloride-of-zinc lotion—a preparation in which Mr. Wood said he had great confidence, especially after the removal of tumours, as preventing putrescence; also he had endeavored, by making the most dependent part of the incision the shallowest, to prevent any bagging of the discharge.

The fistula in ano was a complete one, and had originated in a small abscess which had opened into the rectum. A considerable portion of the track ran in a direction at right angles to that which led to the external opening, and was so small that the director could only be passed along a probe as a guide. Another equally fine sinus was found to terminate under the skin. They were each of them laid open and dressed with oiled lint. Mr. Wood said that had the fine upper track leading into the rectum been missed, the operation would have proved quite useless, and left the patient subject to a speedy return of all his old suffering and inconvenience. It was necessary to explore these cases with great care, as the laying open of any track, however minute, passing under the fibres of the sphincter was absolutely essential; it was also desirable, though not essential, to incise any external sinuses that might exist.

The subject of epispadias had been operated on several times before. A flap had been taken up from each groin, and, at a subsequent operation, the loose tissue of the scrotum had been carried upwards, the testes taking up a very good position at the anterior margin of the perineum, one on either side of the raphé; by these means a prepuce had been provided for the glans, and a canal constructed for the passage of urine. There now remained only a small opening two or three inches above the glans, which permitted an escape of urine whenever the patient was in a recumbent posture, and had resisted two attempts to close it. Mr. Wood took up a lancet-shaped flap about three inches and a half long and two broad, the terminal portion of which came from the inner part of the left thigh, adjoining the attachment of the adductor muscles. Above, where the flap was twisted on its base, a gusset was cut out to remove a large wrinkle, and, the edges of the opening having been pared with the least possible loss of tissue, the cicatricial tissue forming its margin was, by careful dissection, split horizontally to a distance of from a half to three-quarters of an inch, to reach healthy tissue, and the margin of the circular end of the flap was dovetailed between the two layers so formed, and held in position by means of numerous silver sutures. This portion was then painted with collodion. By flexing the thigh on the body, and rolling it inwards so as to relax the integument, and bringing the edges of skin together with silver sutures over the line of the groin, the raw surface left by the reflexion of the flap was nearly covered over, and the thigh then fixed in its flexed position by means of strapping and bandages. Mr. Wood said that he had shaped the flaps so as to avoid as much as possible the cicatrices of previous operations, and by carrying up a perfectly healthy piece of skin attached to a base broad enough to contain an abundance of nutrient vessels, he hoped to ensure success; the union on which he depended would take place between the contiguous raw surfaces of the inferior aspect of the skin and the lower layer of the split covering of the bladder. The patient would be placed in bed in a sitting posture, with the knees drawn up to the chin, for the twofold purpose of avoiding tension on the sutures and of ensuring the flow of urine from the urethral passage. Ten days later, the flap had become entirely adherent, and the operation appeared likely to be a success.

AMPUTATION OF THE GREAT TOE FOR PERFORATING ULCER OF THE FOOT; CLINICAL REMARKS.

(Under the care of Mr. HENRY SMITH.)

The patient was a man past middle age. The great toe of the left foot was drawn up to a right angle with the dorsum, and in the plantar aspect of the ball of the toe was a pus-discharging, fistulous opening. Mr. Smith said that the case was one of perforating ulcer of the foot; and was interesting because an example of a disease not much noticed in books, and requiring amputation—a mode of treatment at first sight unduly severe, though, in fact, none other could be of any avail. As in the present instance, where there had existed for five years a purulent discharge, increasing deformity, and considerable pain, the affection generally commenced with a corn or bunion, in which suppuration took place, and undermining the tendons, proceeded to disorganise the joint beyond all hope of repair. In consequence of the great distortion, Mr. Smith was obliged to make incisions different from those laid down in books, and it was found difficult to obtain a satisfactory flap in consequence of the extensive disease and thickening of the soft tissues around; but by carefully planning the incisions, and removing a sufficient amount of bone, a good flap was formed. The case, on inquiry ten days after the operation, was found to be progressing well.

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UNIVERSITY COLLEGE HOSPITAL.

IN THE WARDS WITH MR. CHRISTOPHER HEATH.

On the 23rd September we visited this hospital with Mr. Christopher Heath, who, during the absence of Mr. Erichsen and Sir Henry Thompson, has the charge of their wards, and saw, among others, the following interesting cases:—

Two cases of skin transplantation of a fortnight's standing. One was that of a woman who had undergone amputation of a carcinomatous breast, involving considerable loss of skin; the other a man suffering from severe eczema of the leg, which about the middle third had resulted in a large and obstinate ulcer. In both instances the result was very satisfactory, but especially in the latter, where the transplanted centres had been placed in a rather unpromising soil, and had expanded into circles of about the size of a sixpenny piece.

A case of extensive ulceration of the integuments of the leg in a child. The ulceration had the appearance and character of a tertiary affection, and Mr. Heath believed it to be the result of a hereditary taint. He put the patient under iodide of iron with local mercurial treatment, and held out great hopes of a favorable result.

An obstinate case of urethral stricture, which had been for a considerable time under treatment in one of the West India islands, and was at last sent to England to be placed under Mr. Heath's care. A No. 3 catheter had been introduced under chloroform at a previous visit, and now Mr. Heath introduced a Holt's dilator, and subsequently drew off the water with a No. 10 catheter, which was introduced without much difficulty. The patient was ordered to be kept warm, and to take an immediate dose of twenty drops of laudanum.

In the same ward, Mr. Heath pointed out a splint, recently introduced from Germany. It is easily made, and forms an efficient substitute for the expensive and troublesome leather splint. It is made as follows: a piece of flannel folded into a double layer is laid underneath the leg; by gathering it up on either side, so as to make its edges meet over the crest of the tibia, and the dorsum of the foot, and cutting off what is superfluous, it is adapted to the shape of the parts. The same is accomplished for the foot-piece by cutting out the fold which results from bringing together over the middle line of the sole the opposite sides of the end of the flannel. Then, as a guide to the next step, a line is drawn in continuation of the middle line of the sole, along the under surface of the leg, and through the part corresponding to the centre of the popliteal space. Next, the flannel being removed, the two layers are united by two lines of stitching, about a quarter of an inch apart, and one on either side of the guiding line. The flannel is then accurately replaced, and the layer adjacent to the skin pinned in position, while the outer one is allowed to drop and hang from the double row of stitches on the undersurface. The outer surface of the inner layer having been spread with plaster of Paris to a depth of about two lines, the other layer is brought up on either side of the leg and foot, and accurately adjusted to the first, to which it soon becomes adherent, while the entire structure sets into a firm and solid splint. It admits of no eversion at the edges, and the coherence conferred by the texture of the flannel counteracts the brittleness and the tendency to crack spontaneously, which are liable to give trouble with plaster of Paris as usually applied. The splint can be maintained in position by bandages and strapping. The thin line of flannel, which has been kept free from plaster by the double row of stitches, and preserves its pliancy, forms a hinge, which enables the splint to be removed and readjusted as often as occasion may require.

In another ward Mr. Heath passed the lithotrite twice into the bladder of an old man—a patient of Sir Henry Thompson,—each time crushing several fragments, and bringing away between the blades of the instrument a quantity of finely-crushed stone. He also drew special attention to a man who was the subject of an enormous malignant growth, involving the neck, cheek, and lower jaw on the right side, and presenting a considerable ulcerating surface. A few minutes later a flow of blood came from the patient's mouth, which was traced to a fungoid projection from the right tonsil, apparently due to the invasion of the part by the malignant growth. The hæmorrhage was ultimately arrested by swabbing the part with perchloride of iron, by means of a sponge fastened to a small stick for a handle, but not until more than a pint of blood had been lost. Mr. Heath explained that the disease had reached a stage at which surgical interference of any kind, including ligature of the carotid artery, would be quite unavailing to stay its progress or alleviate the patient's sufferings.

The last case we notice was one of great interest. The patient, a youth about twenty years of age, had been admitted a few days previously complaining of pain and tenderness in the right hypogastrium and diarrhœa. He was said to be suffering from perityphlitis. We found him pale and somewhat wasted; the abdomen was rather tense, though not notably distended, and at about a third of the distance from the anterior superior spine of the ilium to the linea alba presented a red, fluctuating, and slightly prominent "point," which unmistakably indicated the presence of subjacent pus, for the discharge of which Mr. Heath decided on making a small incision. As the patient exhibited considerable nervous apprehension, nitrous oxide gas was previously administered. The instant the incision was made, a forcible stream of offensive pus spurted out. When about a pint had been discharged, the opening became plugged by what, on drawing it out, proved to be a slough, apparently of cellular tissue, about five inches in length; but no sooner was this withdrawn than there followed a copious stream of venous blood. Digital pressure was immediately applied to the tissues adjacent to the incision, with the result of arresting the flow; and the patient was placed under chloroform. Mr. Heath, failing to discover the source of the hæmorrhage in the lips of the wound or any other attainable part, enlarged the incision, and, having rapidly withdrawn several large handfuls of clot from between the abdominal wall and the parietal peritoneum, applied sponges, with the only result that the blood welled up from some undiscoverable spot and rapidly refilled the cavity. At last, every attempt to discover the seat of the hæmorrhage having failed, and as the patient was beginning to show signs of exhaustion, a large quantity of broad shreds of lint, soaked in solution of perchloride of iron, was stowed into the cavity; this immediately arrested the flow of blood. Mr. Heath said that probably the withdrawal of the support afforded by the large accumulation of pus had determined the giving way of a vein whose coats had been disorganised by the adjoining suppurative process. Three days later the patient was still alive, and had passed some fæces through the wound. We shall have occasion to refer again to this case.

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ST. MARY'S HOSPITAL.

NOTES OF A CLINICAL LECTURE ON CASES OF LUNG INFLAMMATION TREATED BY OPIUM.

By Dr. Handfield Jones.

E. W——, aged twenty-five, a servant, was admitted on the 5th January last, having been ill for two days. She complained of great pain in the left side and some cough. The pain was aggravated by inspiration, and there was hardly any movement of the ribs on that side. There was dulness at the lower part of the left back, and good breathing in the upper part and in all the right back. The tongue was furred and brown; the pulse 120, small, and weak; the temperature 104°. Her first symptom had been cough and heaviness; the day following, she had felt very cold, and on admission her head was very giddy when she sat up. She was ordered four leeches to the left side and a poultice, and two grains of iodide of potassium in an ounce of citrate of potash mixture, and a grain of opium, three times a day. Two days later, the lower half of the left back was very dull, and presented on auscultation marked bronchial breathing, with bronchial voice and weak crepitation; the pulse was 96; the expectoration very scanty, of marked yellow color; the skin warm, the tongue dryish near the tip, and the temperature 104·86°. On the fourth day the pulse was 100 and good, the temperature 97·16°, and the tongue more moist. On the fifth day the pulse was 88, the temperature 99·7°, and the expectoration mucous and scanty; at the left lower back, bronchial breathing alone was heard during quiet respiration, but crepitation as well on deep inspiration; tongue moist and clean; there was still some pain in the left side on taking a deep breath. Her medicine was changed to fifteen drops of the solution of perchloride of iron in an ounce of the hospital quinine mixture; and on the seventh day after admission the pulse was 96, the temperature 98·6°, good breathing was heard at the left base and back, and convalescence was well established.

This was a well-marked case of pleuro-pneumonia, though not a severe one. It came early under treatment—namely, on the third day of the illness,—and defervescence was fully established on the fifth day. It is too much to affirm that the brevity of the attack was the result of the treatment, especially as the fall in temperature was so sudden, more than 7° Fahr. in four-and-twenty hours. Nevertheless, as the opium at any rate, was no placebo, as it evidently did not retard recovery, and as it is known to be useful in other inflammations, we shall probably not be far from the truth if we believe that it promoted the cessation of the morbid process.

Another case was that of G. H——, aged twenty-seven, a porter. He was admitted on the 16th of April. He had been recently laid up with rheumatic fever for six weeks. Three days before admission he was taken with pains at the front of the chest; and the day before he had vomited, according to his account, a good deal of blood. He had often had pain after eating, and had been much troubled with flatulence. No enlargement of the liver or spleen was found; the epigastrium was tender; the tongue moist and rather coated; the bowels were open; the urine was red and rather thick; the pulse 108 and weak; the face pale. He said he felt very weak, and had had the day before very severe pain at the lower left side, about the seventh and eight costal cartilages. The pain was then especially precordial, and increased by inspiration. The left front was resonant, and breathing was heard down to the third space. The heart-sounds appeared normal, but rather weak. There were sounds about the base, or rather between it and the apex, which were partly of cardiac, partly of respiratory, rhythm—one of a creaking or grating character. The precordial dulness was not notably increased. Good resonance and breathing were found on both sides of the back. When he turned on his right side he experienced a temporary feeling of suffocation. He was ordered beef-tea and milk, a blister to the epigastrium, and half a grain of opium four times a day. On the following day he felt some relief; but on the second day after admission there was more pain at the precordia, increased on percussion, and pain on coughing at the lower left back, with bronchial breathing and voice. The heart-sounds were normal; the pulse was 110, small and weak; the temperature 102·2°. He was ordered four ounces of brandy, and a blister to the precordial region; which was followed by considerable relief on the third day. On the fourth day after admission there was no pain at the precordia, or in any part of the chest on inspiration; the dulness, bronchial breathing, and bronchial voice were well marked in the left lower back; the appetite was improving; the temperature 100·4°. On the seventh day he felt much better, and was quite free from pain; and the resonance and breathing at the left base had become tolerably natural. On the eleventh day, the breathing being quite good at both bases, and the patient feeling well, the opium was discontinued, and twenty grains of the saccharated carbonate of iron given three times a day instead. On the fourteenth day he was discharged quite well and strong.

This man had undoubtedly a moderately severe pleuro-pneumonia of the left side, which may be considered to have commenced on April 13th, and to have terminated ten days later, and seven after admission. The inflammation seems to have affected the pleura first, and that rather extensively. The precordial pain, I believe, had really its seat in the pleura which overlaps the heart, and the sounds which were heard were not, I think, indicative of pericarditis, but of a roughened state of pleura. When this serous membrane is thus altered at a part where it adjoins the heart, it is very possible to have a friction-sound produced which is synchronous with the movements of the heart; and if at the same time the respiratory movements are very much checked, the friction may be mainly of cardiac rhythm. It is always, I think, much weaker than the friction-sound of well-developed pericarditis. The patient's testimony was very decided as to the good effects of the blisters, of which, he had, I believe, three. The inflammation terminated speedily, and the exudation was rapidly resorbed. If the opium did not promote this result, at least it produced no perceptible ill effect, and most probably calmed pain and lessened the general distress.

The third case is that of F. Q——, aged one year, who was attacked with broncho-pneumonia of both lungs on February 26th. I saw him in consultation with Dr. Palmer the next day, and we agreed to give ipecacuan, salines, and opium in sufficient quantity to produce some narcotic effect. On March 5th Dr. Palmer reported that the child had distinct tubular breathing in the lower right back, with râle redux at the base of both lungs. Nevertheless he was at my visit sitting up in his mother's lap, and playing with his toys, a very rare sight indeed with such a state of lungs. He is taking half a minim of sedative solution of opium every two or three hours, with ipecacuanha wine and citrate of potash. He was not very sleepy, and had scarcely any fever. The consolidation, which was not extensive, was slow to disappear, but the child became convalescent by March 19th. Opium was recommended in this case because the child was very fretful and distressed, and bearing its disease badly. By lessening the excitability of the sensorium, the wear and tear of nerve-power was diminished, and exhaustion, *pro tanto*, avoided. Though a degree of narcosis was maintained, the respiratory function was not depressed, and the morbid action in the lungs does not seem to have increased. Such cases at this age are very perilous, and I much doubt whether this child would have done so well without the opium.

I might allude, further, to cases of ataxic pneumonia, where the patient suffers with delirium, sleeplessness, and restlessness, and often very hurried breathing, but without orthopnœa or lividity. Here, of course, opium, or some analogous remedy, is urgently needed.

The considerations which led me to look hopefully to opium as a principal remedy in the treatment of many cases of inflammation are: (1) that it seems to act as a conservator of nerve-force when the latter is depressed, as it so commonly is in the prevalent summer and winter catarrhal disorders; (2) that it astringes dilated and relaxed vessels, the smaller arteries and capillaries, and so lessens hyperæmia and exudation; (3) that it renders the sensorium less impressible, and so saves the system from the exhaustion caused by pain and uneasiness. To produce favorable effects, it should be given usually in medium doses, adjusted to the peculiarities of the system. Sometimes it may be combined with tonics or stimulants, sometimes with salines or alkalies, according to the practitioner's estimate of the quality of the morbid action. A good cholagogue aperient should always be premised, unless it be plainly unnecessary. It seems but reasonable that the drug which is so useful in peritonitis should render similar service in inflammations of other tissues. An hypothetical objection to the use of opium in cases of miasmatic inflammatory disease may be raised by those who imagine that the correct treatment is to eliminate the poison. If I thought their intention possible, I should agree with them that it was the main indication, and not to be interfered with. But, as I cannot think that experience teaches us to try to eliminate poisons, but rather to counterwork them, the objection seems to me to possess but little weight. At the same time I admit that I should be cautious in the administration of opium if the renal secretion were very scanty, and still more so if the color of the lips betrayed a like state of the respiratory organs. You will observe that the induction of sleep scarcely forms any part of my intention in giving opium. Great as its value may be as a nightly hypnotic in some instances, I do not now advocate its use on that ground, but as a general sustainer of the vital powers.

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ST. BARTHOLOMEW'S HOSPITAL.

CASES UNDER THE CARE OF MR. PAGET; CLINICAL REMARKS.

A Case of Warty Cancer of the Cheek.—Mr. Paget consulted his colleagues as to the advisability of interfering with this growth, which extended forwards from the posterior boundary of the cheek, near the anterior pillar of the fauces, nearly to the angle of the mouth; its indurated base involved all the tissues of the cheek except the skin, the adjacent gum of the lower jaw, and apparently also the maxilla itself. The objections to interference appeared to be, the danger of profuse hæmorrhage during the operation, the difficulty of completely extirpating the cancer, and the danger of rapid recurrence. The first two Mr. Paget thought were not insurmountable, and with regard to the third said that this form of cancer was less certain to recur than any other. Being supported by the majority of his colleagues, he decided to divide the cheek by an incision carried backwards through the growth from the angle of the mouth to facilitate the exposure of its inner surface, from either flap to remove as much as possible of the diseased tissue with the knife, and to complete its extirpation, especially about the gum and inferior maxilla, with caustic or the actual cautery.

Primary Syphilitic Ulcer of the Tongue.—This ulcer, situated on the edge and a little to the side of the tip of the tongue, presented a perfectly flat, oval surface, with a long diameter of three-quarters of an inch, much as if a piece had been snipped off. Its surface was of a yellowish-grey color, and its base was indurated. Mr. Paget said that its flat, oval surface, and the induration of the base, distinguished it from any secondary or tertiary affection of the tongue. Though it had existed for ten days, there was no induration of the neighboring lymphatics, but he expected that this confirmatory symptom would shortly be developed.

Lupus of the Rectum.—The subject of this affection was a middle-aged woman. On the posterior surface of the rectum it extended to a distance of no more than one third of an inch, on either side, to about half an inch, and anteriorly about three inches upwards. In this direction all the tissues, short of the mucous membrane and submucous tissue of the vagina, were completely eaten away. The ulcer presented an irregular but sharply defined outline, beyond which the tissues were perfectly healthy. Mr. Paget said that this disease corresponded exactly to the *Esthiomène* described by Huguier as invading the labia. It occurred generally in a tuberculous constitution, and presented marked points of difference from syphilitic affections of the rectum. In the latter there were almost always found flattened, œdematous, or coxcomb outgrowths, accompanied by thickening of the submucous tissue, often extending some inches up the rectum, and producing stricture; not, as far as he knew, ever destroying the sphincter, but, by infiltration among its fibres, sometimes producing paralysis. In this affection, on the other hand, there were no outgrowths, there was no thickening of the submucous or infiltration of adjacent tissue, but complete destruction as far as the disease extended, with a boundary of healthy tissue. The sphincter was not impeded by infiltration, but completely destroyed in the anterior wall of the rectum. Short of cancer of the rectum, Mr. Paget said it was the most frightful disease which could affect the part.

The patient having been placed under chloroform, the diseased surface was freely painted with concentrated nitric acid. During this process the patient made an expulsive effort, which resulted in the prolapse of about three inches of the rectum, exposing to view the tissues surrounding the ulcer, and confirming Mr. Paget's observation as to their healthiness.

Cartilaginous Tumour of the Radius.—This tumour, situated on the radial side of the wrist of a woman, forty years of age, was of five years' growth. It was attached by a broad base at a right angle to the outer aspect of the carpal end of the radius. It was about the size of an orange, and covered with smooth, bluish-red skin, which presented two or three ulcerated openings at the upper part of the tumour. The ulna had remained unaffected, and the movement of the wrist-joint was not interfered with. Under these circumstances, Mr. Paget said he should not amputate, but endeavor to remove the growth by excavating the radius. The operation was performed on the following Saturday, Oct. 8th.

CASES UNDER THE CARE OF MR. SAVORY; CLINICAL REMARKS.

Acute Periostitis in Children.—With reference to a boy who was recovering from acute periostitis of the tibia, Mr. Savory said that it was noteworthy that, though children possess a power of repair much more active than adults, they recover much less speedily and completely from the effects of periostitis. This was to be explained by the fact that in them the inflammation is so acute that the periosteum is rapidly destroyed or disorganised into shreds, while in adults a slower process generally allows it to become detached complete, and often leaves it in an almost unimpaired condition, so that it can speedily and symmetrically replace the bone destroyed. This difference, he said, could easily be demonstrated by a comparison of specimens from young and adult subjects in any museum.

Rupture of the Urethra in a Boy.—Mr. Savory said that the patient had received a blow in the perineum, which had ruptured the urethra externally. He had made an incision to facilitate the discharge of sloughs; and a month later, when these had all come away, and not before, he had passed a catheter, first into the outer end of the divided urethra, and then, with a probe introduced into it as a guide into the vesical end, and thence into the bladder. Fortunately the boy had been able to retain the instrument for forty-eight hours, and ever since its removal he had passed an increasing proportion of his urine through the urethral passage. Mr. Savory entertained hopes that the wound would close entirely, and the cure eventually be complete; and added that it was not in these cases desirable to introduce a catheter at the outset, and attempt to retain it there, because, as Sir Henry Thompson insists, the urine always finds its way between the urethra and the instrument, which therefore answers no good purpose, and may do harm.

The Diagnosis of Fracture of the Base of the Skull.—With reference to a patient who had been admitted with bleeding from the ear following a blow on the head, Mr. Savory warned his class against the idea that this symptom necessarily indicates fracture of the base; in numerous cases where bleeding from the ear and nose had followed injuries to the head it had been proved that no fracture had occurred. A discharge of blood followed by serum was, however, almost pathonomonic of that injury, and he was inclined to believe that the continuance of restlessness after from twenty-four to forty-eight hours after the injury was also. He recommended a perusal of Mr. Prescott Hewett's article on this subject in "Holmes's System of Surgery."

Among other cases, Mr. Savory also pointed out a very successful case of skin-grafting, and a rather curious case of a man in whom the buttocks had been split apart to a depth of about an inch immediately above the anus by a fall from a hayrick.

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ST. GEORGE'S HOSPITAL.

OPERATIONS BY MR. PRESCOTT HEWETT; CLINICAL REMARKS.

Excision of a bleeding Nævus.—The patient, a girl of eight years of age and very exsanguine appearance, presented a small bleeding tumour on the outer side of the lower third of the thigh. After its removal, Mr. Hewett gave an account of its history and nature, and the course he had adopted for its extirpation. He said that a more interesting case could scarcely have been brought before the notice of the class. Four years previously, on the growth being first noticed as a small, movable, soft lump, of bluish tint, the patient was taken to the Devon County Hospital, and seen by the surgical staff in consultation with Mr. Square. Its characters at that time being such as to lead to the opinion that it was malignant, it was decided that, if confirmatory evidence was obtained by the introduction of a needle, amputation should be performed. This proceeding, however, only established its vascular nature, and interference was for the time postponed.

The puncture had healed and a year elapsed, when the lower part of the lump gave way, and there ensued an oozing of blood, which had continued up to that day, in spite of an attempt by Mr. Square to arrest it by the injection of tannic acid. At the earnest request of her parents and friends, the child had recently been placed under his (Mr. Hewett's) care, and he had now only done what had been proposed as the next step by the surgeon under whose care the patient had formerly been: with a view to deciding what course should be finally adopted, he had freely exposed the growth by an incision through the integument. Before doing so it had been obvious that the growth could not have been a cancer, of which the only form likely to be present in a child of that age would be the soft variety, which would long ago have betrayed itself by its fungoid appearance. It had proved to be what he expected—a nævus, probably congenital, though so small as to have been observed only at the end of four years; and in a year more it had become the seat of a slow but uncontrollable discharge of blood, which would inevitably have proved fatal if not at length arrested. Mr. Hewett proceeded then to say, that after his first incision he had squeezed out a quantity of clotted fibrin; he had next come down upon the surface of the growth, which consisted of a vascular membrane. The question then arose whether it should be destroyed with acid or dissected off. Finding it to be but loosely adherent to the subjacent tissue, he had cut it out, and with it all the vessels which had been the cause of the hæmorrhage; these had constituted virtually a bleeding sac, of which the communications with the normal vascular system were so minute that on its removal the bleeding and all danger of its recurrence came to an end. What little of the growth then remained he had left to be destroyed by the preparation of sulphate of copper and lint, called "blue lint", with which he had dressed the surface of the wound. He added that it was to be borne in mind that sebaceous cysts of the scalp, after they have burst, sometimes assume a hæmorrhagic character, presenting points of resemblance to the nævoid growth he had just removed.

Removal of a Tumour from an old Scar.—The growth was situated immediately below the clavicle, in the old scar of a wound caused by the application of caustic. The subject was a young woman. Mr. Hewett said he inclined to the opinion that it was fatty; but that there was a possibility of its being a congenital tumour, containing a number of small cysts. The introduction of a needle confirmed Mr. Hewett's opinion that the growth was of the first-mentioned kind; and, after its removal, he advised the class to use the knife as little as possible in similar operations, especially when performed in the neighborhood of large vessels. By pressing the tumour, and turning it out with the fingers, after making the preliminary incision, they would often be able to avoid the division of all but small superficial vessels.

OPERATIONS BY MR. PICK.

Operation for the Cure of Recto-Vaginal Fistula.—This operation consisted in paring the edges of the fistula, bringing them together with silver sutures, and dividing the sphincter ani anteriorly in the mesial line. Mr. Pick said that the fistula was the result of an abscess in the cellular tissue between the rectum and vagina, which had burst into both these canals. The cavity of the abscess, which had at first been of the size of a hen's egg, had contracted to a size just sufficient to admit the passage of the finger from the rectum into the vagina. He added that he could not be sanguine as to the result of the operation, and that if it failed he should lay the track of the abscess open into the perineum, and perform the usual operation for a ruptured perineum.

Mr. Pick then operated by strangulation for the cure of a large subcutaneous nævus on the back of a child.

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WESTMINSTER HOSPITAL.

OPERATION FOR STRANGULATED IRREDUCIBLE HERNIA IN A MAN AGED EIGHTY-FIVE.

(Under the care of Mr. FRANCIS MASON.)

W. C——, aged eighty-five, was admitted on September 24th. He was extremely deaf, but the history, so far as it could be gathered from his friends, was that he had had a scrotal hernia for several years, without suffering in consequence any special discomfort.

Two days before his admission he vomited violently, and complained of some pain in the hernia. He was under treatment at the Lambeth workhouse, where all the usual remedies to afford relief were employed without any good result. On admission there was found a scrotal hernia as large as a man's head, soft over the greater portion, but very painful in the region of the abdominal ring. His bowels had not been relieved for three whole days. He was sick every ten minutes, although the contents of the stomach were not markedly stercoraceous.

Mr. Mason, under the circumstances, thought it best to place the patient under chloroform, and make an attempt to reduce the hernia, for at this time the real nature of the case had not been ascertained. No impression having been made on the swelling, an incision was carried over the neck of the tumour, the sac opened, and after the evacuation of a good pint of fluid, the intestine was found to be firmly adherent at the lower part of the scrotum, which must have contained at least a foot and a half of descended bowel. The strictured part was then divided, and no further attempt made to effect reduction.

On the following day the bowels had been relieved three times, and he had slept remarkably well. No medicine was ordered.

On the 9th of October an abscess near the wound was opened; otherwise the patient was doing well.

In remarking on this case, Mr. Mason dwelt on the extreme difficulty of the diagnosis, and laid special stress on the advantage of opening the sac in such a case, at once revealing the condition of the parts. Had a violent attempt been made to return the protruded intestine, he added, much harm might have accrued, and the patient's life been unnecessarily endangered. The operation he had performed was slight as compared with the inflammation which might have been set up by rough handling.

CASES OF SKIN GRAFTING.

Mr. Francis Mason has performed the operation of skin grafting on granulating surfaces in nine instances. Five of these cases are now under observation.

The first was that of a girl with the cicatrix of a burn in the neck, of which a separate and detailed account will be given on another occasion.

The second was that of a woman who for three years had had an ulcer on the leg, measuring about four inches by three. Three pieces of skin, of the size of a canary seed, were snipped from the front of the upper arm, and simply placed on the ulcer, and retained in position by means of a strip of transparent plaster, made by Ewen of Jermyn-street, and over this water-dressing and a bandage were applied. At the end of a month the ulcer had nearly healed, each of these pieces having in a fortnight attained the size of a fourpenny-piece.

The third case was that of a man with a flabby-looking ulcer, as large as the hand, situated in the groin. Four small pieces from the front of the upper arm were grafted. Three failed to grow, and the fourth, after one month, was only of the size of a pea.

The fourth subject was a woman with an unhealthy ulcer of the leg, extending nearly all round the limb. Four pieces were grafted, and they all failed to grow.

The fifth, a woman, with an ulcer of the leg, of four years' standing, and two by three inches in size. Two pieces of skin were grafted, and in three weeks measured each a quarter of an inch in diameter.

The sixth, a man of middle age, with an ulcer of the leg, four by three inches in size, of nearly four years' standing, which was sloughing at the time of admission. Charcoal and linseed poultices were first applied, and the wound soon showed fairly healthy granulations, on which four pieces were grafted; and on the strips being removed four days later, they were all found to have adhered. When seen eleven days after the operation, they were spreading rapidly.

The seventh, a girl, aged twenty, with a flabby ulcer on the thigh, of eight months' standing. Two pieces were grafted with good result.

In the eighth and ninth cases there were smaller ulcers, in which one piece only was grafted. They rapidly recovered.

Mr. Mason, without committing himself to a decided opinion on this interesting operation, believes that its success depends on the ulcer being, if not in a healing condition, at least of a healthy character. He had understood from Mr. Pollock, who first showed him the operation, that the grafted portions often disappeared for a time, and were, as it were, reproduced in the course of a few days. Mr. Mason has never noticed this phenomenon. In his successful cases the grafted pieces have, on the contrary, never faded away or diminished, but remained centres of centrifugally spreading growth. They have in some instances assumed, in the course of a few days, a cupped or depressed appearance, as if a kind of very superficial ulceration were proceeding; but they have ultimately filled up again, and the process of healing has proceeded. The pieces of skin have only disappeared in cases where they have perished. The situations most favorable for this procedure are, Mr. Mason thinks, those where—as in the case of ulcers of the leg—pressure can be readily applied, so as to keep the grafted skin permanently fixed for three or four days.

Perhaps the difference between the results of Mr. Mason's experiments and those of other operators, as to the disappearance of the transplanted skin, may be accounted for by the rather larger size of the portions (picked up in an ordinary dressing forceps) which he cuts off. In connexion with this point the following cases have an additional interest.

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GUY'S HOSPITAL.

HYPERTROPHIC ELONGATION OF THE CERVIX UTERI; REMOVAL BY THE GALVANIC ECRASEUR.

(Under the care of Dr. Phillips.)

This case is a good example of *allongement* of the cervix uteri as distinguished from prolapse of the uterus, so elaborately described by Huguier; and illustrates the advantage derived from the removal of a portion of the cervix in recent cases, as well as the ease and safety with which the operation is performed by the galvanic wire.

Catherine G——, a widow, aged thirty-five, was admitted into the hospital on the 25th of June. She stated that she was the mother of three children, the youngest of whom was born seven years ago. Her labours had not been attended with any unusual difficulty, and her health had always been good until about eighteen months ago. She then began to suffer much from bearing-down pains, and six months later first noticed a projection from the vulva. This appeared whenever she stood, and at the end of three months she was obliged to give up her occupation, in which she had been engaged for four years. This consisted in lifting heavy weights by the river side. The catamenia were regular and profuse. Various kinds of pessaries had been tried, but without any benefit.

On examination the case was found to be one of hypertrophy and elongation of the vaginal portion of the cervix. This projected from the vagina, and entirely prevented the patient from earning her livelihood. There was no cystocele or rectocele. It was determined to keep the cervix within the vagina by rest in the horizontal posture, and by a perineal pad. At the end of three weeks the cervix was diminished in size, but it then measured six inches and a half in circumference at its lowest part. The uterine cavity was four inches and a half long. The elongation was confined to the intra-vaginal portion.

Dr. Phillips removed rather more than an inch of the cervix by means of Middledorpf's galvanic écraseur. A platinum wire having been passed around it, fixed to the écraseur, and screwed home, was then connected with the battery, and the entire thickness of the cervix was soon removed by carefully screwing the instrument. No blood was lost. The cervix was held outside during its removal, as it was found that this could be done without endangering the bladder in front, or the pouch of the peritoneum posteriorly.

The patient suffered no inconvenience subsequently, except a rather severe hæmorrhage at the following menstrual period. Later on, however, it was noticed that, after exertion, there was a tendency to prolapse of the uterus itself. A small Hodge's pessary was then introduced, and from that time she felt no discomfort. When last seen, the uterus measured three inches in length. There was no tendency to any contraction of the cervical canal.

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MIDDLESEX HOSPITAL.

CASES OF SKIN GRAFTING.

(Under the care of Mr. LAWSON.)

ON the 15 October Mr. Lawson showed us two cases of skin grafting, which differ from any we have seen elsewhere, in that the portions of transplanted skin were each of the size of a fourpenny-piece, allowing for the shrinking which took place in virtue of their inherent elasticity. In both instances a single piece was transplanted; on the fifth day they desquamated, and became slightly livid, as from ecchymosis; about the seventh day they became pink from increased vascularity, and minute granulations began to spread from their circumference, and soon became covered with a film of skin. The cases were both ulcers of the leg, in which the healing process at the circumference was so slight as to be scarcely perceptible; and the new skin, which was almost entirely contributed by the grafted portions, had closed in the wounds in about three weeks, and two or three days before the healing of the wounds in the arm, which presented an area of about an eighth of that of each ulcer.

Medical Societies.

FEBRUARY—JANUARY.

OBSTETRICAL SOCIETY OF LONDON.

Dr. GRAILY HEWITT, President, in the Chair.

DR. PROTHEROE SMITH exhibited a specimen of Carcinoma of the Uterus, in which the disease was limited to the fundus, the cervix being unimplicated, and the uterus being quite movable.

Dr. Phillips referred to the rarity of this form of cancer, and regretted that he was unable to exhibit a specimen he had hoped to have shown at this meeting, in which the cervix was unimplicated, although there was malignant disease in both ovaries, and secondary deposits in the lungs and bronchial glands, the patient having died from pleuritic effusion. The diagnosis of such cases during life was attended with great difficulty. In his case there was very little vaginal discharge, either sanguineous or leucorrhœal. The uterus was quite movable, and the nature of the disease was not suspected. Dr. Smith's specimen reminded him more of strumous than of cancerous disease of the uterus, although the fact of the Fallopian tubes being unimplicated was rather against this view.

Dr. Routh thought that it would be very desirable if, in recording this case in the "Transactions," Dr. Smith would give the *exact* symptoms in detail. It was obvious that, if cancer originating at the fundus was characterised by symptoms as specific as those of fundal endo-metritis, the diagnosis would be much facilitated. Were the glands in the neighborhood free? Was it the case that in cancer of the fundus there was no extension to the surrounding parts? If so, the question of gastrotomy might be worth entertaining, so as to remove the entire organs excepting the cervix, the diseased ovaries being included, thus giving the patient the best chance of a non-recurrence.

Dr. Martin (of Melbourne) read a paper "On a Case of hard Fibrous Tumour of the Ovary removed by Ovariotomy; Recovery, &c." After a description of the history of the patient, the operation, and the progress of the case, Dr. Martin remarked that the interest of the case arose from the great rarity of fibrous tumours of the ovary, as there are scarcely any reliable cases of the kind on record. With reference to the diagnosis, Dr. Martin was of opinion that the use of the sound and the condition of the menstrual function were likely to give us most help.

Mr. Spencer Wells said that it was impossible to form an opinion as to the nature of the tumour from the model exhibited; but, looking to the extreme rarity of fibroid tumours of the ovary, and the great frequency of fibroid outgrowths from the uterus, and to the fact that many supposed fibroid tumours of the ovary had turned out on examination to be really uterine, he believed the tumour exhibited by Dr. Martin to be uterine, and not ovarian. And he explained the presence of the right ovary, and the absence of the left, by the probable adhesion of the left ovary to the surface of the tumour.

The President agreed with Mr. Wells in considering the so-called fibroid tumour of the ovary to be really of uterine origin. He congratulated the Society on the fact that in one evening it had had valuable contributions on the subject of ovarian disease from no less than three fellows of the Society residing abroad, and that these contributions had been the means of eliciting discussion of important questions.

Dr. Hodder, of Toronto, read a paper on a "Case of Ovariotomy." This was a multilocular cyst of the ovary; and the interest of the case arose from the fact of the pedicle, which had been secured by Spencer Wells's clamp, disappearing into the abdomen on the sixth day after the operation, and causing a fatal result.

Mr. Spencer Wells did not think this case bore at all against the use of his clamp; but it did impress the important lesson not to remove the clamp too early. In this case it was removed on the fourth day, when the adhesions between the peritoneal coat and the abdominal wall were too recent to be firm. After eight or ten days, when a clamp generally falls off or is held by mere shreds of tissue, the adhesions have become sufficiently firm to prevent the danger of the pedicle slipping inwards.

Dr. Copeman, of Norwich, read a paper on "Tumours of the Pelvis obstructing Delivery." After referring to the extreme danger of this form of complicated labour, the author said that it was not so rare as might be thought, and referred to a number of cases that had been collected by Mr. Merriman and others. He then proceeded to relate the particulars of two cases that had come under his own observation. In the first case the tumour occupied the posterior portion of the pelvis. Delivery was effected by turning. The mother died on the third day. In the second case, the tumour, which was hard, firm, and immovable, was attached by a broad base to the left side of the pelvis. This case was also delivered by turning, but with extreme difficulty on account of the size of the tumour. The patient made a good recovery. With regard to treatment in cases of this kind, Dr. Copeman remarked that he would recommend puncture of the tumour, but only when it could be ascertained that the contents were semi-fluid or soft enough to be partially evacuated. In other cases he considered turning to be the preferable practice.

The President said that all would admire the courage and perseverance which brought about so successful a result in the second case described. He thought that Dr. Copeman had, probably unintentionally, omitted mention of a method of treatment of such cases sometimes applicable—viz., the pushing of the obstructing tumour out of the pelvis, and thus allowing of the descent of the head.

Dr. Playfair said that Dr. Copeman had not alluded to what was the chief cause of danger in labour complicated by tumour. In 1867, he (Dr. Playfair) had read a paper before this Society, "On the Treatment of Labour complicated by Ovarian Tumour," in which he had collected the details of all the cases of this complication he could meet with, amounting to 57 in all. Of these 13 had been left to nature—that is, the tumour had been sufficiently small to admit of the child being squeezed past it. Of these 13 cases, close upon one-half had proved fatal to the mother. In favorable contrast were the 9 cases in which the tumour had been punctured, and in which, therefore, the tumour had collapsed, and had not been subjected to pressure; since every one of them had terminated favorably. The explanation of the great mortality in the former case was no doubt the contusion and pressure to which the tumours had been subjected, which set up a low form of diffuse peritonitis. Possibly this may have been the cause of death in the first of Dr. Copeman's cases. The inference from these facts seemed undoubtedly to be that by far the best way of treating such cases is to puncture the tumours when they have fluid contents, and this even if there seems room for the child to pass; and even in cases where the tumour seems solid, an exploratory puncture should be made before anything more formidable is done, as tumours apparently solid have often been found to contain fluid.

Dr. Protheroe Smith said that the opinion expressed by Dr. Playfair was of great practical value, as it was frequently found that tumours obstructing delivery were cystic, or subfascial deposits of serum, blood, or pus; and in such cases, he recommended the puncture of the tumour by means of his needle trocar. In a case lately operated on in the Hospital for Women he had evacuated by means of it almost an ounce of thick pus from a tumour, the size of an orange, growing from the back wall of the vagina, in a patient in the sixth month of utero-gestation. The operation was only like the prick of a pin, and required no after-treatment.

Dr. Barnes said that each case must be dealt with according to its individual features. We had to consider the size, position, structure, attachments, and firmness of the tumour, and its relations to the child. If the tumour is movable, and can be pushed out of the way, by all means do it; but in many cases this is impossible. We must then ascertain if it contains fluid, and, if so, lessen its bulk; or possibly the tumour may admit of being removed altogether. To obviate the great danger to which Dr. Playfair had referred, that of crushing the tumour by the passage of the child, it was necessary, when you could not reduce the tumour, to reduce the bulk of the child; and in extreme cases one might be driven as a last resource to the Cæsarean section. He had recently seen a case where a woman died of septicæmia, the result of the bruising of the tumour against the walls of the pelvis.

Dr. Mudge said that he had attended a case where a large fibrous tumour had prevented the descent of the child's head. It was first punctured, and then, with great difficulty, pushed above the brim. The patient afterwards died of peritonitis, the seat of puncture showing signs of having been the starting-point of the disease. He mentioned this as an argument against its too free employment.

Mr. Lowe, of Burton-on-Trent, read a paper "On a Case of Hæmorrhage from Retained Placenta after Abortion." This was a case of profuse hæmorrhage from a portion of placenta retained for several weeks after abortion. It was successfully removed, but the patient sank with symptoms indicative of septicæmia. The author dwelt at some length on the extreme importance of procuring the extrusion of all the secundines in cases of abortion, and pointed out the dangers likely to arise from retention.

The President thought that in cases of abortion little doubt was now entertained as to the expediency of removing the secundines as soon as possible, with the view of preventing various disasters. As a matter of fact, he had found retention of the secundines usually associated in such cases with a marked flexion of the uterus, which condition both caused the abortion and interfered with its completion.

Dr. Wynn Williams said that in cases in which portions of the membranes were retained, the injection of the uterine cavity with some antiseptic fluid, such as Condy's fluid, or a weak solution of iodine (the latter of which he himself preferred), was strongly to be recommended.

Dr. Playfair said that he could not agree with Mr. Lowe's statement that retention of a portion of the secundines was most likely to take place in the first two months; indeed, he believed that this was directly opposed to facts, and that in the first two months the ovum was most likely to be expelled entire, and that retention was most likely to occur in the third and fourth months, when the adhesions of the chorion were most intimate and extensive.

CLINICAL SOCIETY OF LONDON.

Mr. Paget, President, in the Chair.

Mr. Spencer Watson read the "Reports of Four Cases of Parenchymatous Keratitis, associated with Acute Rheumatism." The patients were young adults, all under nineteen years of age. Both corneæ were affected, and the symptoms and appearances were not distinguishable from those of parenchymatous keratitis due to inherited syphilis. Out of a series of cases, extending over the last ten years, Mr. Watson had only observed acute rheumatism in association with parenchymatous keratitis in these four; but he suggested that in some others of the series this complication may have itself cut short the observations, by preventing the attendance of the patients at the Ophthalmic Hospital. From these cases it was conjectured that the interstitial keratitis of inherited syphilis may be allied to rheumatic inflammation, and may possibly yield to treatment such as is beneficial in the latter disease. Two of the patients, whose cases were related, were exhibited to the Society. In one the attack of keratitis had occurred eight years ago. It was found in this case that the young woman had become myopic since, and most probably in consequence of the attack.

Mr. Brudenell Carter commenced the discussion by asking Mr. Watson several questions relative to the cause of the disease.

Mr. Croft remarked that the whole subject required more extended consideration, and briefly related cases of the disease which had been treated with iodide of potassium, with various but altogether favorable results. The author replied very briefly.

Dr. John Harley read a paper on "Injury to the Liver resulting in Abscess; rupture on the 14th day, diffuse peritonitis; formation of a second abscess opening into the colon on the 25th day; interrupted discharge of pus by the large intestine until the 112th day; and complete recovery." The patient, aged sixty-nine, was, by the fall of his horse, thrown forwards upon the brass turrets of his horse's pad, thus bruising the epigastric region. An inflammatory tumour, exquisitely painful, formed just above and to the *right* of the umbilicus. On moving in bed this suddenly disappeared, followed by collapse, and subsequently general peritonitis. In a few days the peritonitis became circumscribed, and the pain and swelling limited to the *left* side of the umbilical region, where there was evidence of formation of a second abscess. This also suddenly disappeared, with dangerous collapse and the evacuation of pus by the rectum. Marked colic symptoms, showing lesion of the bowel, preceded this second rupture. From time to time there was retention of the purulent discharge and hectic, but ultimately a free passage was maintained, the appetite returned, and the patient made so complete a recovery that, at the end of seven months from the time of the accident, he was able to ride and follow his professional work, and he has since (for the last eighteen months) enjoyed perfect health. The author considered that the left lobe of the liver was bruised or lacerated by the accident; that an abscess formed which pointed partly towards the right hypochondrium, and partly within the small omental sac behind the stomach; that rupture occurred in the latter situation, the pus escaping into the small omental sac, and then, finding its way through the upper layer of the transverse meso-colon, passed further downwards between its layers, forming a second abscess by the side of the descending colon. This, in its turn, caused inflammation and rupture of the contiguous wall of the large intestine, and thus the pus was liberated and carried out of the body. Hectic and jaundice attended the retention of the discharge.

Dr. Ogle read a case of Tetanus. The patient, a healthy boy, got a bruise on the thumb. Three days afterwards he complained of stiff-neck, and vomited, and shortly afterwards became affected by opisthotonos. On the fifth day after the injury he was admitted into St. George's Hospital in a state of tetanus. He was put fully under the influence of belladonna; ice was constantly kept applied to the spine, and chloral was given at night to induce sleep. It was noticed that at no time did the sardonic smile exist, and there was never any trismus or (except on one day) difficulty in swallowing liquid food, such as wine, brandy, beef-tea, and beaten-up eggs. In this case the temperature and pulse were registered twice a day; and it was noticeable that almost throughout the patient's stay in the hospital the temperature was higher in the evening than in the morning, on one day reaching 102·3°. About the fourteenth day after the injury the tetanic symptoms began to abate, and by degrees the belladonna and the chloral were discontinued, and also the application of ice to the spine. After about a month from the accident the patient left the hospital quite well, and has so continued ever since. Dr. Ogle suggested that possibly the examination of numbers of cases of tetanus might show that the temperature always increased in the evening, and that this fact might have value in diagnosing true tetanus from certain cases of affections of the spinal cord and its membranes, certain cases of hysteria, and strychnia and other poisoning. Dr. Ogle believed that the highest temperature arrived at in tetanus was recorded by Wunderlich, who described it as being 108° shortly before death; 112·55° at death; and 113·56° after death. He also alluded to a case of tetanus in which, after the attack, the patient was subject to great irregularity of the heart's action, with much discomfort and palpitation on exertion, as if the mechanism of the organ had been injured in some violent muscular effort.

This subject caused considerable discussion, Mr. Croft commencing it by ingeniously dividing tetanus into two classes: one in which patients died, and the other in which they recovered. He professed scepticism as to the use of belladonna exclusively, but remarked, in a subsequent stage of the discussion, that he had treated cases of this disease with the hydrate of chloral (and with nothing else), with apparently good effect.

Dr. Harley required evidence as to the irregularity of the heart's action in the case related by the author; and attributed the favorable results of the belladonna treatment to the toxic effects of that drug.

Chunder Roy continued the discussion by saying that, according to experiences gleaned at Calcutta, he had come to the conclusion that in cases of tetanus death always occurred if the muscles of deglutition were affected: but in the absence of this symptom, the prognosis might be favorable; that, in consequence, symptoms only were treated; that

Indian hemp and opium smoking were most commonly used (the latter not, in these cases, producing constipation), and that the general result proved the opium treatment to be the best.

Dr. Barclay quoted Dr. Fuller as to the advantage of belladonna in the treatment of cases of chorea, and said that with children it might be given advantageously in very large doses.

The Chairman recapitulated his experience as to cases of tetanus, the gist of which was that all drugs hitherto exhibited produced little or no appreciable effect. Of the cases which resulted in recovery, one was that of a boy in which nothing was done, another in which oxygen gas was employed continuously, and two others in which chloroform and other drugs were used. He also made some remarks as to treatment by Calabar bean, which were challenged by Dr. Anstie.

Further observations were made by Dr. Broadbent and Mr. Croft; and Dr. Ogle closed the discussion by explaining his own ideas as to the physiological action of belladonna in cases of the kind under discussion.

Editorial.

LIVER PATHOLOGY, OLD AND NEW.

There is nothing more remarkable in the revolution which has come over our views of the nature and treatment of disease than obtains in what may be called the region of liver pathology. In the old practice of physic the liver figured very largely. A certain group of symptoms, such as loss of appetite, sickness, furred tongue, constipation, and sallow or dirty complexion, were by common consent liver symptoms. If, again, the symptoms were somewhat vague and undefined and difficult of construction, the ample liver was the organ sure to be blamed. And in many other cases, where more accurate methods of diagnosis have compelled us to pronounce other organs to be palpably at fault, both patient and practitioner alike have shown a disposition to implicate the liver. The diagnosis has not been thought complete until it included the hepatic organ. It is one of the most curious things in human pathology, if not in human nature, that a certain considerable number of people seem rather pleased than otherwise to be told that their liver is affected. Every practitioner must have been struck with this fact.

Well, all this is either altered or should be altered; and the time has come when, by the clearness of symptoms which implicate other organs, the liver must either be absolved or held to be only indirectly implicated. Two or three things have conduced to change medical opinion. Not to be too strict in our enumeration of facts which explain the change, we may mention one or two such facts. First, physiology has been very modest in her contributions to the elucidation of the functions of the liver. When physiologists came to put down in black and white that which had actually been made out as to the uses of the liver, they have had until lately very little that was definite to write, and the little that they had to say was rather destructive than confirmatory of the ordinary views. One of the most universally recognised ideas in medicine was this—that we had the power of increasing almost indefinitely the action of the liver and the amount of its peculiar secretion. This was a great faculty for a drug to possess; and no wonder that a power so remarkable should be frequently used. The bile was regarded as only an excrementitious secretion, fit for nothing but removal from the system. Its partial retention was thought to be a common thing, and to be explanatory of half the ailments that the system was subject to. And so mysterious was the influence attributed to mercury that, when there was reason for thinking that bile secretion was going on excessively, even then mercury was given. A sort of homœopathy came over the most orthodox practitioner, and he thought it better to give mercury for an excess of bile than not to give it at all. Then came Dr. Bennett's experiments on dogs, which make it, to say the least, extremely doubtful whether mercury really has the power of increasing the amount of bile. And some practitioners, determine to have a justification for the administration of a drug they so much used, found even in Dr. Bennett's experiments the *rationale* of its curing cholera: it actually, diminished, they said, the biliary secretion.

Our principal intention to-day is to say that there is a danger of practitioners losing too much their faith in the medical importance of the liver. When the favorite group of ideas regulating our daily practice has been disparaged, there is a risk that a simple scepticism concerning the truth of any other ideas should take possession of the mind. It is to prevent this, and to show its inconsistency with the present state and promise of our knowledge, that we now write. So far from justifying us in thinking less of the liver and its secretion, physiology is making it appear that the functions and processes of the liver are amongst the most interesting and the most important of any in the animal economy. We shall notice only a few of these.

The one idea of the old physiology was, that the liver secreted bile, and that the only purpose for which bile was secreted was that it might be excreted. People seemed to think that the more they excreted the better; and that Providence designed that mercury should complete the special action of the hepatic cells. Now, it is clearly established that bile is not merely or chiefly an excrement. The experiments of Bidder and Schmidt abundantly show that animals fare badly if all the bile secreted by the liver is at once conveyed out of the body by the establishment by a permanent fistula in the fundus of the gall-bladder. Such animals, with bile secreted as usual, but kept from entering the intestine, undergo progressive emaciation until every trace of fat disappears from them; they lose nearly half their weight; the hair falls off; the breath and fæces acquire a very putrescent odor; the abdomen becomes distended with flatus; and, although digestion of food goes on after a fashion, it is after a very flatulent and putrid fashion, and the animals die by a failure of the vital powers. Such experiments show that bile in the intestine serves some useful purpose, and that the power to remove it out of the intestine is one that, even if we possess it, we should use very cautiously indeed. That the essential ingredients of bile are reabsorbed, probably after undergoing some change in the intestine, and not removed, is further shown by the fact that only a very slight proportion of them is to be detected in the fæces.

But modern physiology has greatly enlarged our notions of the probable functions of the liver by showing us, not only that its great palpable secretion is formed in the quantity of two or three pounds per day, mainly to be reabsorbed, but that the liver has the most curious and important relations to the formation of other substances, which are as interesting to physicians and to practitioners as to physiologists. A few years ago Claude Bernard seemed to have completely demonstrated that the liver secreted *sugar* as well as bile. And physicians hoped that they were about to get great help from physiology in understanding and possibly curing diabetes. Since then the sugar-forming function of the liver has been a matter of the liveliest controversy between physiologists; one of our own physiologists maintaining most ably a negative position towards the proposition of Bernard. For a long time it has seemed as if Dr. Pavy had the best of it, and as if he had really demonstrated that the formation of sugar by the liver is only a post-mortem event, not a physiological one. It is a question which must be left to the physiologists. But, meantime, we must say that Bernard's experiments still retain a very high importance, and that his conclusions are not yet shown to be false. Even if no sugar is actually formed in the liver during life, it is a significant fact that this organ is loaded with a substance which quickly becomes sugar on the decline of vital conditions. But it is only fair to say that the latest experiments of physiologists confirm Bernard in the view that, under normal conditions, sugar is found in the liver. This intensely interesting point has just been the subject of fresh experiment by an American physiologist—Dr. Lusk, professor of physiology, Long Island Medical College,*—who, with special precautions, has repeated the necessary experiments. Dr. Lusk concludes that the quantity of glucose in the right side of the heart is from two to four times greater than that found under corresponding circumstances in the jugular vein; that this excess argues a by no means insignificant amount of sugar in the pure hepatic blood before it has become largely diluted with the comparatively non-saccharine fluids of the venæ cavæ; and that we are forced to admit the fact of sugar-formation by the liver, though we fail to detect (herein confirming Dr. Pavy) the presence of sugar in the liver tissue, when after death the fermentation of the glycogenic matter is prevented. Dr. Austin Flint, jun., had come to similar conclusions, which he considers confirmed by Dr. Lusk's experiments. Not only does the liver, then, secrete bile, but, according to Bernard, Flint, Lusk, and others, it secretes sugar, not apparently to the exclusion of other organs and tissues, but in a much larger quantity than these. It is impossible to decide as yet the significance of this function in health and disease; but it is clear that our advancing knowledge does not warrant us in thinking less lightly of the liver as a factor in the production of diseased or abnormal states.

We have not yet exhausted the importance of the liver and its functions. According to Meissner, the liver is the chief source of urea in mammalia and of uric acid in birds. He has found this substance in considerable quantities in the livers of mammalia, and in very slight quantities in the flesh. In birds, in which urea is represented by uric acid, a given weight of liver yields many hundred times more of uric acid than the same weight of muscle, which has been too exclusively regarded as the source of these substances. Pathology has some facts of its own to be associated with these physiological ones. In diabetes, for example, it is well known that the amount of urea excreted is increased; in other words, that the large excretion of sugar coincides with a morbid excretion of urea. Moreover, cases of azoturia, or increased excretion of urea, such as have been discussed by Prout, Parkes, Ringer, Roberts, and others, have been observed to be caused by mental anxiety—an influence recognised in the production of diabetes. Still further, a copious and persistent deposit of urates is a characteristic feature of many cases of organic disease of the liver. Such deposits, even when more scanty and occasional, often guide the practitioner in prescribing. On the whole, it is manifest that, as physicians and practitioners, we shall have to consider the liver and its functions more than we have ever done; and we may say, as a consolation for the disparagement of old-established notions of the uses of calomel and other mercurials, that there is little doubt that we shall be able powerfully to control the great functions of the liver by either diet or medicine, or both.

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* An account of Dr. Lusk's experiments may be seen in the 'New York Medical Journal" for July.

SEXUAL DISORDERS.

Continuing the subject of Sexual Disorders, we proceed next to the consideration of cases in which masturbation has been regularly or frequently practised, and in which it forms an important element. In these we find, primarily, the loss of power in other directions which follows from an unnatural and frequently repeated nervous excitement, as well as from the excessive withdrawal of the seminal elements from the blood; and, secondarily, the train of symptoms described by Lallemand and others under the name of spermatorrhœa, in which there is a liability to frequent ejaculation under the influence of very slight external stimulants, and in which the congested and relaxed lining membrane of the seminal passages is constantly ready to furnish a certain amount of viscid mucous secretion. The combination of nervous exhaustion and physical drain, often occurring soon after puberty, and before growth is complete, places a formidable barrier in the way of perfect bodily evolution, checks or vitiates nutrition, diminishes mental energy, and probably in many instances leads to tubercular deposit in vital organs. At a later period, when manhood is reached, the irritability of the nerves of the penis may render coïtus impossible or unsatisfactory, the imperfect erection and hasty ejaculation preventing congress, and the difficulties being heightened by the anxiety and annoyance suffered by the subject of them; who often fears to undertake marriage, and either abandons himself more and more to solitary indulgences, or seeks relief from the worthless nostrums of the villanous quacks who prey upon his class.

The diagnosis of masturbation is seldom, a matter of difficulty. In early manhood, when advice is sought on account of sexual weakness, the question would of course be put, and put in such a way as to invite the confidence of the patient. It should be put also in cases where the only complaint made is of general debility; and in such cases the power of the practitioner to discover the truth will greatly depend upon the possession of a tact in examination that cannot be learned from books, but of which it is certainly one element to make the necessary inquiries in a tone and manner as if they were as much matters of course as the inquiries about appetite or digestion. With boys, more caution is required, and the surgeon will often be restrained by the fear of suggesting possibly unknown evil. Among masses of boys, as in schools, we believe the practice of masturbation is always known, although it may not be extensively followed. With homebred children the case may be otherwise; but, as regards both classes, it is possible to attain an approach to certainty by careful examination of the urine for spermatozoa. If the urine were collected daily for a week, and its lowest stratum explored microscopically, after due time for subsidence, seminal emission, if occurring, would almost always be detected, and its causes could then be inquired into without further hesitation.

It is very possible, however, that the influence of schools and other associations of boys is liable to be exaggerated; and that the causes of masturbation are often inherent. Many writers, and none more conspicuously than the late Dr. Copland, have called attention to the salutary influence, in this regard, of the oriental practice of circumcision. The sebaceous secretions of the base of the glans soon become highly irritating, and, when retained by an elongated prepuce, occasion irritation which suggests friction for its relief, and which also serves to direct attention to the penis. Hence the occurrence of erections, of pleasurable sensations increased by manipulation, and finally of ejaculation. The chain of events is natural enough, and no teaching or suggestion is necessary in order to explain it.

The practice of masturbation, when fairly ascertained to exist, must always greatly complicate a case of admitted sexual or of evident general weakness; but it differs much in its inveteracy in different cases, and also in its effects upon the local organs and the general health. Nothing but evil has followed from the overwrought accounts of its influence that have been published, both by moralists seeking to deter, and by quacks seeking to plunder. The truth is that it does some harm always, and much often; but that its effects are not always traceable, and that the cases are only exceptional in which it leads to phthisis, or epilepsy, or insanity, by any path that can be at all clearly made out. Many of those who practise it continue to do so very much as a consequence of the exaggeration by which it has been surrounded, and which leads them to believe either that they are hopelessly committed to a fatal habit, or else that the common statements about the evils attending it are wholly, as they are manifestly partially, untrue. The first duty of the surgeon, therefore, is to disabuse the minds of his patients of unreal or exaggerated fears; and, by their banishment, to make room for sober truth about the facts of the case, so as to excite a desire for emancipation from a degrading sensual bondage.

The methods that are required for the cure of masturbation must be modified in accordance with the earnestness and the power of self-control of the patient; but where these are considerable, and the habit is not inveterate, success may usually be obtained. The first point requiring attention is to remove all causes of external irritation from the glans penis. In cases of phimosis it would always be highly salutary to perform circumcision; and even when a long prepuce can be retracted, the operation would certainly be beneficial. At all events, the prepuce should be fully drawn back at least twice daily, and the exposed parts well washed with soap and water, then dried with a soft towel, and moistened with a lotion containing about four grains of sulphate of zinc to an ounce of equal parts of glycerine and distilled water. In this way slight sensations serving to call attention to the parts may be avoided. In some cases no more may be required; but in most it is necessary to guard the penis for a time against improper manipulation. This is best done by keeping up slight soreness of the body of the organ, either by blistering liquid or tissue, tartar-emetic ointment, nitrate of silver, or any other application. The soreness should be sufficient to render erection painful; and it is usually best to draw a ring or two rings round the penis with the selected application, leaving space enough for fresh ones as those first made recover.

In all these cases there is nothing to be hoped for without the cordial co-operation of the patient; and this co-operation may be none the less cordial when moral weakness renders it sometimes ineffectual. Considerations of moral strength or weakness, and the presence of the want of truthfulness, must be the chief guides to the surgeon in determining how long the blisters or other applications should be continued. Many patients who earnestly desire to lay aside the practice of masturbation would be unable to do so if they were not aided by the soreness of the penis; and they will then be inclined to cling to this help after the habit is effectually broken. The only general rule that can be laid down is to err, if at all, in the direction of caution; and not to lay aside the blisters, unless entire reliance can be placed upon the truthfulness of the patient, without first making arrangements for continued examination of the urine, so that any loss of semen may be at once detected, and checked, if necessary, by returning to the applications.

In the way of medical treatment there is little to describe. It is important to obtain sound and speedy sleep, and to enforce early rising and a cold sponge bath on awakening. Bed should not be sought too early, nor without fatigue; and if, after all, the patient should be restless in the beginning of the night, a dose of the hydrate of chloral might be given with advantage. Regular and easy action of the bowels should be secured, the rectum cleared of ascarides or other sources of irritation, and cayenne or other peppers avoided. The tincture of perchloride of iron will sometimes be highly useful, and can never be injurious, while in all cases it will appeal to the popular belief in the universal efficacy of drugs. In many cases the effects of masturbation will demand surgical treatment; but the consideration of this part of the subject must be reserved for a future article.

THE USE OF PURGATIVES.

Every judicious medical practitioner will admit that the use of purgatives is one of the most important questions in the practice of physic, and one which it behoves us, as medical journalists, to consider from time to time. The remedies in question are ready and popular; they produce palpable effects, and in many cases very beneficial effects. They are almost the only members of the evacuant class of remedies left us by the present doctrines of fashions of medical practice. Bloodletting has become almost a mere matter of history; emetics are used almost as infrequently. But there remains one evacuant or eliminant measure to which we have frequent recourse. And it is the use of this measure which we discuss to-day. Medical men vary much in their practice in regard to this point: some using purgatives almost as a matter-of-course element in the treatment of every case; others regarding the need for them as so exceptional and generally uncalled-for as to forget them too much, and occasionally fail to use them when they should, to the great temporary inconvenience of their patients. If we were patients shut up to a choice between these two extremes, we should decidedly elect to be treated by the practitioner who under-purged his patients. The general character of our views on this subject is well expressed in the classical paper by Sir Henry Holland "On the Abuse of Purgative Medicines." This accomplished physician says:

> "If asked whether the use of purgative medicines beneficial beyond all others, under certain conditions, is not carried too far in modern English practice, I must affirm my belief that it is so; and each successive year of experience strengthens this conviction."

The use of purgatives should be regulated by a strict regard—first, to what nature can do without them; secondly, to what assistance they can give nature; and, thirdly, by a clear conception of certain things which they cannot do, and which good practitioners will not expect them to do. Under one or other of these heads we shall hope to say most of what we have to say. For the rest, we will be content to leave the subject to the consideration of our readers in the light of their practice.

First, then, as to what nature can do without purgatives. And here the first remark we have to make may seem to some readers too obvious to be necessary; but it is very important. It is this: nature can generally, and as a rule, accomplish the evacuation of the bowels sufficiently often, if not daily, without the use of purgatives. There are persons still alive who have not gone to bed for fifty years without taking an opening pill. And there are a great many persons who think it necessary to take such medicines frequently. Just as, formerly, people thought it necessary to be bled at stated times, so now some people think it necessary to purge themselves. Others do it from a most painful belief that one of the chief duties of man is to secure a daily action of the bowels. If this is is not procured they think there must be something wrong, and they have recourse to the old and rude procedure of a strong purgative, which acts repeatedly in one day, and probably leaves them in a state of more hopeless constipation than before. Such practices should have no sanction from scientific medicine. The frequency with which the bowels should be evacuated varies greatly in different individuals. There is no physiological or moral reason for a daily visit to the watercloset; though if such be the disposition of nature, it is well. Every practitioner must know that there is much difference in this matter among persons that are equally healthy. But even where there is constipation, decided and inconvenient, there is no reason for attacking it at once with strong purgatives. The probability is that it depends upon some faulty habit of the individual: that he smokes too much, or sits too much, or drinks too much beer or tea or port wine, or that his food is too dry and too destitute of succulent vegetables. The regulation of the faulty habit will probably suffice to cure his constipation. If it does not, some tonic laxative will be indicated, the action of which shall resemble most the natural action of the bowels, and which shall tone the bowel to a natural and habitual action, rather than irritate it to a spasmodic and short expulsive effort. In other words, not one large purgative dose should be given, but repeated doses of some mild and aperient tonic. Sir Henry Holland advised, in these cases, bark, either alone or in combination with a few drachms of infusion of senna. The combination of sulphate of iron and small doses of aloes with a little extract of henbane and gentian makes a very valuable pill in such cases. It is astonishing to notice, in regard to this pill, the variable effect in different cases of small quantities of aloes. In some cases a mere fraction of a grain is sufficient with the iron to procure a comfortable action of the bowels.

Before we leave the subject of constipation we must add a caution to practitioners that dislike purgatives, lest occasionally they find themselves off their guard and trifling with a case where the colon and even the smaller intestines are loaded with accumulated fæces. This error is less than the alternative error of treating every patient as if he had a loaded colon. But, for all that, it is an error or an oversight. It is most likely to happen in the case of women, especially of ladies, of lax fibre, that are too comfortably circumstanced, who live too richly and walk too little. Even here strong purgatives are not indicated, but enemas frequently repeated, and moderate doses of efficient purgatives. After present relief has been afforded to those symptoms—probably of colic or discomfort, probably of obstruction,—the bowels must be treated with a tonic laxative medicine, such as that above described, and a proper regulation of diet.

We have in our last remarks admitted the great good which purgatives, rightly used, are capable of doing. But there are other cases to be mentioned showing how indispensable they are in medical practice. Amongst these are cases of albuminuria, after scarlatina or otherwise; anasarca from other causes; serous apoplexy. It is important in these cases not to depress vital power too much, and to accompany the purgative with broths and other nutritious food. There are few more satisfactory cases in practice than those of albuminuria after scarlet fever treated with occasional compound powder of jalap, and more frequent doses of tincture of perchloride of iron. It seems as if there was a real elimination not only of fluid but of urea in such cases. In mild cases of the sort, however, this treatment is not required, the administration of broths and of diuretic quantities of barley-water or toast-water sufficing to complement the natural tendency to recover.

Now let us say a few words as to things which purgatives cannot do. *They cannot eliminate morbid poisons.* Nobody now believes they can do this in regard to eruptive fevers, including typhus and typhoid. We are loth to say a word in difference from Sir Henry Holland's admirable remarks, but the importance of the point is a sufficient excuse. He lauds the action of the full use of purgatives in typhoid fever. It is now generally admitted that purgatives are to be most charily used in this disease, where the intestine is so invariably affected, often to ulceration. And it has certainly appeared to us that light opiates are most beneficial in this state, and that the cases do best in which there is most tendency to constipation. Another very esteemed medical Baronet has intimated his intention, in the event of another epidemic of cholera, to take a dose of castor oil with a view of the eliminating effect of it. We are sure that the whole medical world hopes that Sir Thos. Watson will not have the chance of testing the wisdom of this intention, which does not seem to us warranted by anything known in regard to the action of purgatives in other diseases comparable to cholera. Secondly, *purgatives cannot remove a clot on or in the brain.* The pathology of true apoplexy, as now elucidated, with bloodvessels degenerated and the heart probably impaired in texture, greatly alters the question of using purgatives in such cases. If, indeed, we are in doubt as to whether the effusion is serous or sanguine, they may be employed, but with care and discrimination. Another thing purgatives cannot do—*they cannot overcome a mechanical obstruction of the bowels.* And in cases of such obstruction they should be given most cautiously, and in such forms and doses as to irritate as little as possible. There is a less serious case, but a much more common one, in which purgatives are almost constantly used—namely, that of lying-in women. The traditional rule of a purgative on the third day, which has been observed better than most of the ten commandments, should be reconsidered. Often the practice is quite uncalled for because unnecessary; and in other cases the excessive action of the bowels weakens the patient, lessens the amount of milk, and retards the healing of the parts by disturbance. At the same time a laxative is not seldom needed, and none is better than castor oil; but it should only be given when necessary, and in teaspoonfuls rather than in half-ounces.

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RECENT RESEARCHES ON THE ACTION OF ALCOHOL.

A NEW and interesting phase in the discussion on the action of alcohol upon the organism is offered by the important paper by Professor Parkes and Count Wollowicz, lately read before the Royal Society. These observers have experimented afresh upon the action of alcohol on the healthy human subject; and their efforts have been directed to the object of ascertaining what are the results, respectively, of abstinence, moderate consumption, and large consumption. It must be understood that the inquiry was strictly limited to the action of *alcohol, mixed only with water*, and of brandy, upon the healthy subject; and that no absolute inferences can be rightly drawn from them as to the action of ordinary alcoholic drinks even in health, and still less in disease.

Viewed, however, as a piece of physiological research, this paper demands the most careful attention. Its great importance consists in the remarkably negative character of the results brought out; these, it may be said, will be equally unwelcome to the teetotaller on the one hand, and to the extreme advocate of alcohol on the other. It is difficult in the short space of a leading article to give an adequate account of this research; but the following may be accepted as the main points which it elicits:—

1. In the first place the inquiry results in a distinct confirmation of the maxim that alcohol, given in small and in large daily quantities respectively, has widely different effects upon the system. Beyond a certain line of dosage, which Dr. Parkes places at 2 oz. of absolute alcohol daily (Dr. Anstie had fixed it, approximatively, at 1½ oz.), symptoms of *narcosis* are produced; and simultaneously with this the appetite, which had been helped by the smaller ration, begins to be visibly depressed.

2. With small and with large doses the heart's action is quickened; but the increase of rapidity rises very greatly when once we get to narcotic doses.

3. The nitrogen-excretion does not appear to be affected (the nitrogen supply being equal), nor does the amount of free acidity or of phosphoric acid in the urine seem to diminish, either with normal or with moderately narcotic doses.

4. Neither alcohol nor brandy lessens temperature.

5. Upon the question of the elimination of alcohol, unchanged, the authors arrive at merely qualitative results—i. e., they show that a certain amount of elimination does go on. They allow that recent research has rendered it improbable that this is very large in amount—at any rate as far as regards the urine; but they conjecture that it perhaps goes on, with varying intensity, for a longer time than was supposed by Anstie and Dupré, and that, taking all the channels of excretion together, a notable proportion may be really discharged unchanged. It may certainly be said, however, that they adduce only slender evidence to support this conjecture. And, as far as the experiments march side by side with those of the last-named observers, they confirm them almost exactly; for they show very well that urinary elimination never becomes more than a mere trace till really narcotic doses are reached. It was also only with narcotic doses that the authors procured evidence of what they believed was a continuance of elimination over several days.

Although Dr. Parkes is far too candid to go intentionally one step beyond his facts to support a particular theory, yet it is tolerably obvious that his mind tends towards certain conclusions from the facts which he has observed, and these conclusions are not quite what we should ourselves be, inclined to draw. In the first place, he hardly seems to perceive that, even on his own showing, it appears necessary to admit that moderate doses of alcohol, at any rate, must be in greatest part destroyed or combined within the organism, with the result either of tissue-formation or force-production, or both. It is certain that people do not go on storing up unchanged alcohol within their tissues. Yet there seems now no possible escape from this dilemma: either alcohol is employed for vital purposes within the body, or else the regular alcohol-drinker must become a mere walking spirit-store. It is no argument against the view that alcohol is an aliment, that it does not elevate the temperature of the body above the normal line; because there are many ways in which heat, momentarily generated by the combustion of a hydrocarbon, may practically disappear within the organism, and fail to be appreciable by the thermometer; and, as a matter of fact, the ingestion of ordinary food does not appear to be followed by any elevation of the rectal temperature, if this was already at the normal standard.

Again, we cannot by any means admit that the chemical results (or non-results) of alcohol upon excretion which Dr. Parkes and M. Wollowicz adduce at all justify the assumption that the body cannot be assisted to perform more muscular work on less food by the aid of alcohol. What they do prove, if correct, is this—that the ordinary accusation by teetotallers that moderate doses of alcohol hinder the oxidation-processes, which are the true life of the healthy body, is false. But it still remains quite possible that, without preventing the application of one single grain of ordinary food from being applied to tissue-building or force-production, alcohol may supply an extra force especially fitted for the needs of organic motor life, and possibly capable of diversion, in case of need, to the supply of voluntary motion. We should like to hear Dr. Parkes's mature thoughts upon the question—How does violent muscular exercise prevent the intoxicating effects of doses of alcohol which would otherwise certainly narcotise? The fact is notorious. The rough conjecture that the effect may be due to increased skin and lung elimination breaks down instantly when we subject it to actual experiment. Let anyone drink half a bottle of strong port in the course of half an hour, and then set himself to the exercise of running rapidly up and down a long room, or vaulting over bars; and let him collect the sweat which pours off him, and submit it to distillation. He will avoid the otherwise inevitable narcotism, but he will find only the most trifling evidence of elimination by the channel of the skin; and if he also examines his breath, by passing it through a test solution of chromic acid, he will find nothing to warrant the belief that the lungs are doing a large work of elimination.

In one instance, and in one only, have Dr. Parkes and M. Wollowicz allowed themselves to step altogather outside the area which these researches cover, and to invade quite foreign territory. The man upon whom they experimented accidentally contracted an ephemeral catarrh, with slight elevation of temperature, during the time that he was taking large doses of alcohol. The authors remark that the alcohol did not prevent a rise of temperature; and they speak of this, much to our surprise, as a conclusive proof that alcohol cannot reduce fever-heat. We certainly cannot admit the validity of this argument. The doses taken (six and eight ounces of absolute alcohol) were out of all proportion to the gravity of the fever—the temperature not rising above 100·7°. Indeed it may be said that the modern advocates of alcohol in febrile disease would select such a case as a typical example of the kind of febrile affection in which alcohol should be given either not at all or most sparingly. We cannot doubt that the pulse would have been found to be distinctly lowered in tension after each dose of alcohol, and that in every way the symptoms would have indicated a narcotic and mischievous effect; but it is unfair to argue in any way from such a case to that of severe pyrexia in typhus or pneumonia. In short, the researches of Dr. Parkes and M. Wollowicz, interesting and valuable as they are, ought only to serve as the stimulus to further and still more elaborate researches, by those who have time and skill to make them, into the deeply important question of the actions of alcohol upon the body in health and in disease.

COMMENSALISM.

That many animals of the same species live together in large companies or associations, exercising in the construction of their habitations and in the storing up of their food skill and foresight that equal if they do not in many cases surpass those of man himself, is familiar knowledge. Again, it is well known that almost every animal boards—if we may use the expression—a number of others at his own expense, supplying them with food which they abstract from his tissues and juices. Some of these parasites, like the leech, live independent lives—constituting, in fact, the free lances of the animal kingdom, attacking whom they will, and, having satisfied their appetite, detaching themselves to search for a new victim. Others, again, more fixed in their habits, penetrate the tissues of their prey, and, securely ensconced in the connective tissue, bone cavities, brain, liver, or other organ, continuously absorb the nutriment they require from the living animal. In a recent lecture delivered before the Royal Belgian Academy of Sciences, M. v. Beneden has drawn attention to yet another kind of association, that, like the last, commonly occurs amongst animals, belonging to altogether different classes, and to which he has applied the term Commensalism. The *lien* that exists in such cases is not always at first sight obvious, though probably it is connected with the supply of food, the Commensal either consuming the same food as the host, and therefore, as the name implies, being a companion of his table, or being placed under circumstances peculiarly favorable for acquiring its own. M. v. Beneden divides Commensals into the fixed and the free, the former being represented by the Tubicinella, Diadema, Coronula, or other Cirripedes, which, as already stated, are found attached to large animals like the whale, the movements of which constantly bring them into relations with fresh supplies of aliment. The free Commensals constitute the most numerous as well as the most interesting division, and various examples may be cited of their occurrence. One of them is met with in the form of a small fish termed the Fierasfer, which was discovered by MM. Quoy and Gaimnard in the voyage of the *Astrolabe*, and which inhabits the cavity of a Holothuria or sea-cucumber. This little fish is elongated and compressed like the blade of a sword. The interior of the Holothuria seems to be rather a favorite resort for various animals, as, in addition to the Fierasfer, M. Semper has discovered a Pinnotheres (crab), Eulima, Stylifer, and a nondescript acephalous animal. Another singular instance of commensalism is met with in a Siluroid of the genus Platystoma, which lodges in the cavity of its mouth several small fish formerly regarded as young Siluroids, but which have been shown by Professor Reinhardt to be adults of the genus Stegophilus. In the mouth of another fish, an Indian fish, the Stromatæus, Dr. Bleeker discovered a small crab of the genus Cymothoa. Dr. Collingwood, again, has seen an instance where a fish, instead of being the protecting, is the protected Commensal: one, to which he has not given a name, inhabiting the body of a large Anemone; whilst another fish, the Caranx trachurus, lives in the interior of the beautiful Medusa called the Chrysaora. The Pinnotheres crab, again, is well known as constantly taking up its abode within the shell of living Lamellibranchs, as the Pinna, Modiola, and Avicula. Some amphipodous Crustaceans live in a true crystal palace, inhabiting the transparent bodies of the Tunicata, Salpa, Beroe, and Pyrosoma. The Stylifer, which, according to Gwyn Jeffreys, constitutes a distinct group of Gasteropods, are found as free Commensals sometimes in the mouth, sometimes in the lower parts of the digestive cavity of various Asterias, Ophiuridæ, Comatula, and Holothuriadæ; and lately M. Stimpson, of Charleston, has described a Gasteropod analagous to a Planorbis, which lives as a Commensal on the body of an Annelid (Ocoetes lupina). This relation between two or more animals, often of very different grades of organisation, thus presents many features of interest, and it is not unlikely that many remain to be discovered.

Medical Annotations.

"Ne quid nimis."

CATTLE PLAGUE AND THE WAR.

Thirty-two years ago Delafond wrote: "If the day should come when France would be invaded by the Germans, the Prussians, the Russians, or the Dutch, to this calamity would quickly be added the contagious typhus of horned cattle." (*Police Sanitaire*, 1838.) The foresight of the distinguished Alfort professor would seem, unhappily, about to be justified by the event. The Prussians —or rather the Germans—are now in France, and in the rear of the invading army, presently, doubtless, to follow in its track, contagious typhus (*the* "cattle plague," as we have come to designate the malady by way of sad pre-eminence) has declared itself among the herds brought together for the sustenance of the forces. Correspondents at the seat of war report the presence of the epizootic at Berlin, and its extension thence to the shores of the Baltic, into Holland, and at various points along the route of the invading army. The veterinary advisers of the Privy Council have not failed to note the significance of the announcement, and an Order in Council, published with considerable rapidity, put in operation, from the 14th inst., all the regulations in the fourth schedule of the Contagious Diseases (Animals) Act of 1869, in respect of cattle brought from any port of France, and has directed that all such cattle shall be slaughtered within ten days after being landed, exclusive of the day of landing. By an Order in Council dated the 10th August, 1869, the provisions of the Act were applied to all cattle imported from the Netherlands, Russia, and the States of the North German Confederation (danger from the latter being now securely shut out by the blockading fleets.) The recent order will complete our safeguards against the different routes by which the dreaded epizootic may again find its way to these shores. Let us hope that these safeguards will prove effectual. If it should so chance that the epizootic finds an entrance among the herds collected in Paris and the immediate neighborhood, the provisioning of the besieged city will fail in one of its most important requirements, and its capability of holding out be proportionately diminished.

PATHOLOGICAL SOCIETY OF LONDON.

This Society got to work with a goodly list of pathological specimens for a first night's meeting.

The most interesting items brought forward were a specimen of Aneurism of the Aorta, involving the innominate artery, from a case in which Mr. Heath had attempted to tie the subclavian and the carotid, but had failed to secure the former vessel on account of the great displacement of parts, and the entire overlapping of the vessel by the sac of the aneurism; a series of specimens of Intestines from German soldiers who had died at Sedan from acute dysentery, contributed by Dr. John Murray; a specimen of Phlegmonous Gastritis, by Dr. Moxon; Embolism of the Middle Cerebral Artery, by Dr. Fagge; and Malformed Hearts, by Dr. Peacock.

Some little discussion on the remedies used by the Germans in the treatment of dysentery drew from Dr. Wilks the remark that ipecacuanha was introduced into France two hundred years ago, under the appellation of radix anti-dysenterica, for the treatment of dysentery in one of the Dauphins of France. It would seem that in the present war the Germans generally prefer the exhibition of tincture of perchloride of iron.

THE LIVER THE SEAT OF FORMATION OF UREA.

The latest researches upon the place of origin of urea, and especially the beautiful experiments of M. Gréhant, have demonstrated that the kidneys are by no means secretory, but purely excretory, organs for urea. Dr. Cyon, in the last number of the *Centralblatt*, publishes a few facts in the form of a provisional communication, to show that it is probably produced at the liver. The plan of experimentation adopted (in common with M. Istomin) was as follows: The whole of the blood was abstracted from the carotid of a dog, and a portion, after being defibrinated, was transmitted by means of mercurial pressure through the liver. Coincidently three canulæ were introduced—one into the inferior vena cava, the second into the hepatic artery, and the third into the vena porta. The results of careful analysis showed that the blood which had passed through the liver contained a much larger proportion of urea than ordinary arterial blood. In one experiment 100 c. c. of the arterial blood when defibrinated contained 0·08 grammes of urea; but after having been passed four times through the liver, the same quantity contained 0·176 grammes.

THE EFFECT OF MEDICINES ON TEMPERATURE.

We are glad to notice what we hope is the commencement of a study by veterinary surgeons of the phenomena of temperature in the diseases of animals, and the effects which medicines may have in influencing these phenomena. Mr. F. J. Mavor, M.R.C.V.S., has forwarded us a paper in which he records some careful observations on the horse, which appear to prove that the subcutaneous injection of atropia considerably elevates temperature, and that this effect persists for a considerable time. This observation accords with the results obtained by Mr. Oglesby, of Leeds, in experimenting with atropia on rabbits. We have not space to insert Mr. Mavor's paper at length, and perhaps it will be best that some of the more general statements which he makes as to the effect of drugs on temperature should be carefully revised by him, as they seriously conflict with the results obtained by a large number of competent investigators. But, in regard to atropia, he has advanced some unquestionably interesting and valuable facts, which are recorded with a minuteness that entitles them to credit.

CREASOTE WATER AS A MEANS OF PRESERVING ANIMAL TISSUES.

Mr. F. Holbein remarks (*Berichte der Deutsch Chem-Gesellschaft*, 1870, p. 61) that the application of creasote to the preservation of animal tissues, and of the entire bodies of animals, is sufficiently familiar, but that the following method may nevertheless prove of interest to zoologists. In order to preserve the whole animal it should be macerated in water that has been well shaken up with ordinary creasote. The action should be allowed to continue for from one to several weeks, according to the size of the creature; and, if large, the belly should be laid open, though this is not necessary in birds, reptiles, and fish. It is then to be dried in the air, the proper position being given to it. As the body remains elastic after drying, it may be packed without any special precaution being taken. In the case of birds, the feathers will be found to retain their color; and fishes preserve well both their form and color. Soft animals, however, like mussels, shrink considerably. The plan is peculiarly well adapted for fish collectors.

THE ORGAN OF TASTE IN THE TADPOLE.

F. E. Schultze, in a recent number of the *Archiv für Microscopische Anatomie*, describes the organ of taste presented by the fully developed larva of the Pelobates fuscus. The oral cavity of this animal contains about two hundred papillæ, amongst which there are about eighty of conical form and larger size. Nerve fibres penetrate into the interior of the last-named papillæ, but do not terminate, as Stricker maintains, in slightly bulbous enlargements beneath the epithelium, but in peculiar groups of epithelial cells, that agree in their character with the gustatory cells or cups described by Schwalbe and Louén as visible in the tongues of mammals, and especially in the circumstance of their being composed of two different kinds of elongated epithelial cells.

Reviews and Notices of Books.

Compound and Comminuted Gunshot Fractures of the Thigh, and Means for their Transportation, &c. By John Swinburne, M.D., of Albany, New York. Albany: Van Benthuysen's Printing House. 1864.

This is a reprint from the Transactions of the Medical Society of New York; and it may prove interesting at the present time to discuss the method of treatment of these very grave injuries as advocated by the author. He appears to have been induced to bring his views and the results of his experience before the notice of the Society from hearing the subject of gunshot fracture of the thigh discussed in the surgical section of the Academy of Medicine by Frank H. Hamilton, E. Krackowiser, and others,—all concurring in the opinion that those injuries, not involving the knee-joint, did not call for amputation. In fact, more recovered without amputation than with it, but with defective limbs. The question remained—What plan was the most feasible for carrying out this humane object? None was presented, except Smith's anterior splint, Professor Buck's arrangement, and the long straight splint; which, however, were not always available on the battle-field, on the march, in temporary hospitals, or while the sufferer was being transported to temporary hospitals. If the patient do not die of exhaustion, the parts may become so conditioned as not to be amenable to scientific treatment. The lateral as well as the longitudinal distortion is, in most instances, great; and these results are attributed by the author to the absence or deficiency of immediate treatment. The system advocated by Dr. Swinburne is the utilisation of the stretcher as a splint. As soon as possible after the injury he would place the patient on a bed or stretcher, extend the limb to its natural length, and retain it in that position by fastening the patient's foot to the end of the bed or stretcher by means of adhesive plaster, making counter-extension by the use of a large perineal band fastened to the head of the bed or stretcher. There should be no bandaging of the thigh or leg. In order more fully to make the stretcher a splint, he proposes to place two sliding iron rods, the length of which should be from eight to twelve inches, upon the handles of the stretcher, provided with thumb-screws to keep them in any desired position, and allow of their being depressed, elevated, or extended as the case may require. The foot-strap can be fastened to the sliding iron rod at the foot of the stretcher, while the perineal belt can be fastened to the sliding iron rod or arm at the opposite end. In order to avoid the tendency of the foot to invert or evert, a bag of sand or bran, or some such simple expedient, might be necessary to secure the proper position of the limb.

The statistical data marshaled in favor of the practice of the conservative treatment of gunshot fractures of the thigh at large. The pamphlet concludes with a series of rules for excision of joints and for the treatment of simple fracture of the shaft of long bones. There is, however, at the present time a good deal of discrepancy between the statements of German military surgeons as to the relative merits of amputation and resection as illustrated by their late campaign in Bohemia. It has been alleged by some that many of the resections have not proved in their ultimate results so satisfactory as could be desired. The excitement, hurry, and movements incidental to the exigencies of warfare militate against the systematic observation of surgical practice, and preclude the employment of many of those methods of procedure which might be adopted with advantage under more favorable circumstances.

A Practical Guide to the Study of the Diseases of the Eye: their Medical and Surgical Treatment. By Henry W. Williams, A.M., M.D., Opthalmic Surgeon to the City Hospital, Boston, &c. Third Edition. Small 8vo; pp. 422. London: Trübner and Co. 1869.

Handbook of the Diseases of the Eye: their Pathology and Treatment. By A. Salomons, M.D. Small 8vo; pp. 122. Trübner and Co. 1870.

The attention of the medical profession in America, no less than in England, has for some time past been called to the growth of ophthalmology, and to its claims to rise into almost a department of the healing art. In England we have reached the stage of big books upon the subject; and can boast of treaties that almost exhaust the refinements of this branch of surgery. In America our brethren are still in the stage which was represented in this country by the "Handy Book" of Messrs. Laurence and Moon, and in which small treatises—pilot balloons, so to speak—are needed, in order to call attention to the demand that ought to exist for large ones. We have no great faith in these small treatises, which necessarily fail to convey information about many details on which successful treatment must depend, and which are apt to present but a skeleton of principles. But we are bound to say that Dr. Williams has produced one of the best examples of this class of work, and that the little book of Dr. Salomons appears to be correct as far as it goes, which is but a short way. The purchaser of either may depend upon not being misled; but it is by no means equally sure that he will find sufficient information for his guidance in an emergency.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Dr. B. W. Richardson read a report on "Methyl Compounds," and in it he stated that among other things that had been discovered by his experiments made during the past year with anæsthetical bodies, was that it was possible to remove pain without removing consciousness, although any act performed by the patient was afterwards forgotten; the nervous centre which produced sensibility was affected and paralysed before those centres which were devoted to consciousness. He thought it very possible they would be able to produce paralysis of sensation throughout the body without destroying consciousness at all.—In the discussion which ensued, Dr. Turnbull said the subject was an important one, and he believed the author's researches would lead to useful practical results in the preparation of remedies.—Professor Humphry of Cambridge looked forward to nitrate of amyle becoming a cure for those horrible afflictions, lock-jaw and hydrophobia. With reference to the distinction between the locality of consciousness and the locality of sensation, he knew an instance in which a lady, under the influence of ether, was aware that she was having the wrong tooth drawn, although she was unable to give utterance to the fact.

Dr. Brown-Séquard followed with two papers, "On Apparent Transmission of Abnormal Conditions due to Accident Causes," and "On Various Alterations of Nutrition due to Nervous Influence." It is impossible to do justice to these in a few words, but in the course of his remarks he said that the series of experiments he had made upon different animals led him to the belief that the right side of the brain was more important for organic life than the left side; and although the two sides of the brain were precisely alike when the animals were born, by greater development of the activity of one side it came to be quite different from the other. He showed also, among other things, that epilepsy induced in the guinea-pig could be transmitted to its offspring.—Professor Huxley, the President of the Association, complimented the author upon the value and importance of his papers. He hoped that this meeting, with which his name would be associated hereafter, would be distinguished by the reception of some great facts, and new facts in science, and that hereafter this or that branch of science would be able to look back at this meeting at Liverpool, and date from it as the time from which that branch of science took a new start. He was convinced that the observations made by Dr. Brown-Séquard would be referred to as having proved an introduction to a great and new path in science. The great theoretical problem that they had now to determine was to know what effect artificial modifications and external conditions had had on living organisms—changes which, by being transmitted hereditarily, became the basis of new races. If the Darwinian theory proved to be the true one, it would turn on the evidences they were able to bring forward to show that external conditions were capable of producing changes in living organisms, which, by being transmitted hereditarily, would produce new races. In discussing these great problems, they would be compelled to go back to the remarkable experiments made by Dr. Brown-Séquard, which showed the possibility of transmitting epilepsy hereditarily.

A paper was read "On Air-Pollution from Chemical Works," by Mr. A. E. Fletcher. During the progress of many manufacturing processes gases or vapors were given off, which, passing into the surrounding air, polluted it, and rendered it more or less unfit for the purposes of animal and vegetable life. If all noxious vapors were to be suppressed by the summary stoppage of the manufacturing processes causing them, we must dispense with the use of a variety of useful substances; inindeed, it might be said that every manufacture at its birth was accompanied by some offensive smell or smoke. Still the public were right in requiring that noxious vapors should be reduced to a minimum. The author then referred to the direction which he thought future legislation should take. There was an Alkali Act, but it regulated the alkali manufacture only.—Mr. Gossage anticipated that ere many years, chemical nuisances would be unknown.—Dr. Angus Smith did not doubt that, by careful attention to the mode of investigation pursued by the author, it would be possible to know exactly the proportion of sulphuric or muriatic acid, and probably of other gases, which proceeded from a particular place. The whole question was one, however, requiring great consideration, and it was only by examination that a proper mode of calculation could be arrived at; but there were some results already, ascertained, which could be employed in sanitary inquiries.

Dr. Cobbold made some remarks on the heart of a Chinese dog from Amoy containing a number of parasites, and which often cause these dogs to expire suddenly. This dog died in 1859, after three days of great suffering. There are only three specimens of the dog's heart thus affected preserved in this country; one in Edinburgh, one in the Netley Museum, the present forming the third. From 11,000 to 224,000 filariæ have been found in the blood of some of these dogs.

Dr. Cobbold also contributed a notice respecting the embryonal development of the hæmatozoon *bilharzia;* likewise on a rare and remarkable parasite from the collection of the Rev. W. Dallinger; it belonged to the Flukes, and was almost unique, for he knew of but one other in the world. It presents three instead of the usual two rows of circlets round the head.

Mr. Ray Lankester made some observations on Methæmogloblin which exists in old blood-stains and old blood-clots, and is determined by spectral analysis, possessing somewhat of a medico-legal interest. Also on the action of some gases and vapors on the red blood-corpuscles; those chiefly used were ammonia, carbonic acid, steam, alcohol, chloroform, and boracic acid, and the changes produced on the globules were described.

The following papers were read in succession:—"On the Correspondence between the Anterior and Posterior Extremities, and the Position of the Limbs in the Higher Vertebrata," by Professor Flower; "On the Comparison of the Bones and Muscles of the Shoulder and Hip," by Professor Humphry, of Cambridge; and "Comparison of the Thoracic and Pelvic Limbs in Mammalia," by Mr. R. Garner.—The views of all three varied, and to some extent were opposed to one another, and an animated discussion ensued.—Professor Rolleston held that the identity of the nerves had a great deal to do in solving the question of homologies, in opposition to the views of Prof. Humphry; indeed, he said. it explained very much why nervous lesions were followed by hereditary consequences, as Dr. Brown-Séquard had pointed out the day before. — Professor Clelland differed from Professor Flower, and thought the processes of development were opposed to his views; and Dr. Pye Smith believed that more stress should be laid on the skeleton than on the muscles, in considering the question of homologies.—Dr. McAlister, on the other hand, supported the muscular views of Mr. Flower; indeed, he said, having worked at the subject for a very long time, he was satisfied that they were the only correct ones. In replying, Professor Flower said the principal difference between Professor Humphry and himself was in the interpretation of the surfaces of the pelvis and scapula; and Professor Humphry observed that he had no objection to the nervous element of Professor Rolleston, which, however important, was extremely difficult to make out.

The following papers were read in succession, and then discussed:—"Protoplasm and the Germ Theories," by Dr. G. W. Child; "The Controversy on Spontaneous Generation, with new Experiments," by Mr. J. Samuelson; and "Remarks on Fermentation and Putrefaction," by Dr. Crace Calvert. The great interest of the subject, from its having been so largely dwelt upon in the opening address of Professor Huxley, the President of the Association, caused the large room where these papers were read to be positively crammed. Dr. Child stated that he did not wish to enter upon the endless controversy as to the relation of protoplasm to life; he would, therefore, merely lay before them certain propositions in regard to protoplasm, not as being absolutely out of reach of controversy, but simply as defining what he meant by it. He then proceeded to describe what protoplasm was, and then examined the experimental evidence put forward, and went on to say that the conclusions he had arrived at on the theoretical relation of the question of Abiogenesis were that, it appeared to him, Abiogenesis in some form or another was a neçessary consequence of certain other theories which were gaining ground at the present moment, such as the origin of species, and the theory of evolution. It was hardly conceivable that we could theoretically hold that the original simple forms from which the whole animal and vegetable world had been developed had sprung into existence out of the regular order of the evolution of the universe. What was called the germ of theory of disease threw an interesting light on the question. Zymotic diseases were now believed to result from the multiplication and reproduction of germs in the blood of the man or animal affected. The matter to be accounted for was, how the germ diseases appeared, disappeared, and afterwards cropped up again in the same district, and at great intervals of time. If the old theories were to be maintained as to the fixity of species, every one of these diseases must have existed somewhere from the beginning—a view that was hardly credible, but still held by some.—Mr. James Samuelson, in his paper, discussed at length the present position of the controversy of Heterogenesis, or the supposed creation of the lowest forms of plants and animals *de novo*. He expressed his belief that those who adopted the theory of the creation of living forms only from germs already in existence would eventually find their view to be correct. He characterised the terms as vague in which Dr. Bastian had described the results of his experiments. From a series of experiments extending over many years, Mr. Samuelson had little doubt that the plant types really spring from atmospheric germs; and, in conclusion, he said that if the believers in spontaneous generation still insisted that their hypothesis had not been refuted, he could retort that their experiments had only proved so far their inability to exclude invisible germs from their infusions.—Dr. Calvert, in his paper, referred to some experiments he had been engaged in of examining the expired air of patients suffering from typhoid, scarlet fever, and small-pox, relatively to the microscopic life it revealed. Some of them entirely proved the correctness of Dr. Tyndall's and Mr. Samuelson's statements.—In the discussion which followed, Mr. Bentham remarked that the experiments as to the existence or non-existence of germs could not be taken as conclusive.—Dr. Hooker said that botanists could throw little light on the subject.—Dr. Braidwood remarked that his similar, but independent experiments had led him to arrive at the same results as Dr. Samuelson.—Dr. Child, in reply, said he could not doubt that the organisms of Samuelson were produced by germs. They had, however, learnt that day that if any form of Abiogenesis could be shown to exist at the present time, it was the production of those perfectly undefined and minute masses of protoplasm which might or might not be produced spontaneously; but, at any rate, nothing beyond that was known at the present time.

A paper "On the Shadows of Genius," was contributed by Mr. W. C. Denny. In it the brain was considered in a state of unhealth, not disease, when the shadows of excitement or depression had closed around it, and the mighty intellect became "like sweet bells jangled out of tune and harsh." Influenced by these eccentric derangements, the children of genius seemed to form one special genus of their own, which was distinguished by the soubriquet of *Genus irritabile*, and it was of this, the night-side of intellectual nature, that he wrote. The author passed on to refer to the forcing of children, through pride in their precocity; and some of them, martyrs to this early forcing, drooped prematurely, or, exalted to frenzy pitch, themselves extinguished the lamp of life. Byron, he said, indicated in his writings that he considered himself one of these unhappy children. But, on the other hand, the author believed composition might prove a safety-valve; of this Byron again was an illustration when he wrote the "Bride of Abydos." As instances of sensitiveness he cited Alexander Pope, John Keats, William Cowper, Kirke White, Beattie, and others; and among those whose minds were clouded with melancholy he instanced Ariosto, Dante, Voltaire, Cowley, Johnson, &c. The author then considered the effects of overwork and food in the stomach on the brain, and concluded with a caution against over-exercise of the brain and excitement, as having a tendency to cause insanity in an irritable subject.—In the discussion, Dr. P. M. Duncan said he totally differed from the author, if he supposed that there was any predisposition of genius in insanity. Statistics of insanity, he said, proved that its greatest increase had been amongst paupers, while there had been a decrease among the better educated classes.—This view, however, was opposed by Dr. Barnard Davies, who said the apparent increase was really due to the workhouse lunatics now being sent to asylums.

A paper "On Left-handedness" was read by Dr. Pye-Smith, in which he glanced at the various hypotheses, which had been advanced from time to time to explain why people in different countries and ages had agreed to use the right hand and not the left. The principal question, he said, was not why some people are left-handed, but why so many were right-handed. The author confessed that he had no solution of his own to urge, but wished to elicit the opinions of others likely to advance some satisfactory explanation. A discussion followed, in which Dr. King, Prof. Rolleston, Dr. Eddison, and others took part, but the only observation that seemed of any value was that early education had very much to do with the matter.

Dr. Moffatt read a paper "On Geological Systems and Endemic Diseases," showing that the soil has an influence on the composition of the cereal plants grown upon it, and on the diseases to which the inhabitants are subject. He confined his observations to the Carboniferous and the New Red Sandstone formations in the district where he practised. The inhabitants on the first are engaged in mining and agricultural operations, those on the second in agriculture alone. Anæmia with goitre is a very prevalent disease amongst those living on the Carboniferous system, whilst it is almost unknown amongst those residing on the New Red Sandstone; and consumption is also more prevalent amongst the inhabitants of the former. He analysed the wheat grown in the soil over these two geological formations, and found a larger quantity of phosphates and of the oxide of iron in that from the New Red or Cheshire Sandstone than in that from the other. He therefore calculated that each inhabitant of the Cheshire Sandstone, if he consumes one pound of wheat daily, takes in nearly four grains more per day of the sesquioxide of iron than the inhabitant of the Carboniferous system, who seems, therefore, to be subject to this great liability to anæmia in consequence of the deficiency of iron and phosphates in the food he consumes.—In the discussion which followed, Dr. Turnbull, of Liverpool, said the author opened up a comparatively new subject which had scarcely yet been touched upon, and it showed that there was a connexion between the geological condition of soils and the health and diseases of the inhabitants living upon them. It showed, too, that this influence might be indirect through the food grown on the soils, and how anæmia and goitre might be produced by deficiency of the agents in wheat described by the author. The statement that consumption was less common in the inhabitants living on the Cheshire Red Sandstone than in those upon the Carboniferous system was of great interest to him, as he had himself, in a work on the subject, directed attention to the inequalities in the distribution of this disease, with a view to their prevention. He (Dr. Turnbull) had pointed out the great mortality from this disease in Liverpool, which led to sanitary improvements which reduced the mortality from phthisis in a remarkable manner. The author had brought another fact to light, and had proved that conditions of soil might indirectly influence the inhabitants through the food grown on it.

A paper of some interest, "On the Antiseptic Treatment of Contagia, as illustrative of the Germ Theory of Disease," was read by Mr. Wm. Hope, V.C. In the summer of 1867 rinderpest broke out in a herd of some 270 cows on a farm in which he was interested. The disease was pronounced, after inspection by Professor Brown, of the Privy Council, to be incurable, and there was no chance of saving a single animal out of the whole herd. Mr. Hope at once undertook the treatment of one-half of the animals, and formed roadways and pyramids of slaked lime all around the sheds. He then used a quantity of carbolic acid, and combined the double treatment of liquid diet, for the purpose of guarding against the secondary symptoms, with what he might term the chemical treatment of Crookes. The result was he saved every single animal thus treated, whilst all the others died. The author urged that he saved the lives of these animals not by any medical treatment, properly so-called, but by an unremitting, careless, chemical onslaught on the germs of the disease. He thought the chemical treatment of rinderpest on so large a scale was one of the most practical proofs of the germ theory of disease that had as yet been obtained, and for this reason communicated the details of a very long paper. He applied the same treatment to scarlet fever, using gargles of carbolic acid, one part to 200 of water; the acid was also freely used round the bed, and the germs of disease attacked in every direction with complete success.—A long discussion ensued. The chairman, Professor Foster, said, however valuable might be the experiments of the author, much more would have to be done before they could come to the conclusion that this antiseptic treatment was a proof of the germ theory.—Dr. Baylis believed in the germ theory, but it was impossible at the present time to arrive at any definite conclusion respecting it; he regarded the experiments of the author as very valuable, so far as they illustrated the effects of carbolic acid.—Dr. Cobbold said it was an assumption that germs existed in rinderpest, for they had, as yet, never been seen.

On the same occasion papers were read by Dr. Cobbold "On some of the more important facts of Succession in relation to any Theory of Continuity"; by Dr. Caton, "Contributions to the Migration Theory"; and "On a New Method of Studying the Capillary Circulation in Mammals," by Professors Burdon-Sanderson and Stricker. With regard to the last, the process was shown at the Medical Institution. The capillary circulation could be readily seen in batrachians and fishes, on which curare could be used; but in mammalia it could not be. Hydrate of chloral had been tried with the best effect, and the difficulty of examining the mammalia was now overcome, for the circulation was seen to be quite unaffected under its influence. The omentum of the guinea-pig was the part submitted to examination, and the experiment was quite successful.

Dr. King read a paper "On Blight in Man and the Animal and the Vegetable World." Having defined the terms blight, contagion, and infection, he proceeded to describe the signs by which their presence could be traced, and enumerated the various diseases which were supposed to be contagious or infectious. His principal contention was that disease was the result of a local impurity of the atmosphere, and that whereas a healthy person might be affected if he went to the spot so infected, the party suffering could not convey the disease to another upon his removal to a different locality.

Dr. Richardson read a paper entitled "New Physiological Researches on the Effects of Carbonic Acid." They related to the direct action of carbonic acid on animal and vegetable fluids, and they were interesting equally to the zoologist and botanist, as to the anatomist. The author had studied the effects of carbonic acid on albumen, serum of the blood, blood itself, bronchial secretion, and other organic fluids. When the serum of blood was treated with carbonic acid under pressure and gentle warmth, the colloidal part was separated; but when the blood with the fibrine removed from it was treated, there was no direct separation, the blood-corpuscles seeming for a time to engage the gas by condensation of it. But blood containing fibrine, and holding fluid by tribasic phosphate of soda, was at once coagulated by the acid. The bronchial secretion was thickened by carbonic acid, and a tenacious fluid was obtained, resembling the secretion which occurred in asthma and bronchitis; while secretions on serous surfaces were thickened and rendered adhesive. After detailing many other facts, the author concluded by showing what bearing this subject had of a practical kind.

Foreign Gleanings.

FATAL POISONING BY THE LEAVES OF THE TAXUS BACCATA (YEW).

L'Imparziale, of Florence, mentions the case of a girl, aged nineteen, who was advised by an old woman to take a decoction of these leaves to bring on the catamenia. She first took for three days, every morning, a tumblerful of a decoction of between five and six ounces of the leaves. (This quantity of leaves was probably boiled in the three tumblers: the text is not clear.) On the fourth morning the dose was increased to eight ounces. Severe vomiting ensued; a medical man was called in; but as the patient lived in the country, no powerful remedies could be obtained. The vomiting was encouraged by the use of tepid water; mustard was applied to the legs, but the patient died, delirious, eight hours after taking the last dose of the decoction. Nothing of importance was revealed by a post-mortem examination; but it remained clear that the leaves in question possess violent narcotic properties. On reference to Lindley, we read:—"The leaves of the yew are fetid and very poisonous."

LARGE DOSES OF OPIUM IN TETANUS.

Chloral is being extensively tried in this malady. Some statistics respecting its efficacy will be now most welcome. In the meanwhile it should not be forgotten that heroic doses of opium have, in some hands, been successful. *L'Union Médicale* gives the experience of Dr. Chazarin, who practised for seven years in the French colony of Senegal. He mentions altogether twenty-eight cases, twenty of which, treated by various means, terminated in death. The eight others were submitted to the following treatment: First day, 15 grains of gummy extract of opium in solution; second day, 22 grains; third day, 30 grains; fourth day, 37 grains; fifth day, 45 grains; and so on, increasing the dose each day seven grains if the symptoms did not improve. When 90 grains were reached, the doses were diminished in the same ratio from day to day. Of these eight patients one only died, and this in consequence of frictions of oil of turpentine imprudently undertaken on the advice of a neighbor. These cases deserve particular attention, though they are not very uncommon, as some analogous ones were published in *L'Imparziale* of Florence in the year 1868. Quinine was, however, in these latter instances added to the opium.

SMALL-POX WITHOUT ERUPTION.

An epidemic of small-pox broke out this summer at a place called Limite, near Empoli (Italy). In publishing an account of this epidemic, Dr. Landucci states that several persons presented all the symptoms of the complaint, but had no eruption. Dr. Anciaux, in *L'Art Médical*, corroborates the cases, and says that he witnessed the same peculiarity whilst the small-pox was prevalent in his locality.

TWO CASES OF DEATH AFTER RITUAL CIRCUMCISION.

Dr. Schwarz has published in the *Wiener Med. Presse* the cases of two boys, eight days old, who died—one five days after circumcision, and the other twenty-five days after the same operation, both of phlegmonous inflammation and sloughing of the part. Dr. Schwarz deprecates the custom with great warmth, and expresses the wish that it may be laid aside.

News Items, Medical Facts, &c.

The Present Medical Staff of the Prussian Army.—The *Allg. Med. Centr. Zeit.* of Berlin (No. 76, 1870) gives the following figures:—One medical officer for every 500 men. Besides this there is a special body of surgeons intended for the sick and wounded in the field, which body is called the sanitary detachment. Every corps of the army is followed by twelve field hospitals, each completely organised for 200 patients, so that every corps is provided with the means of treating 2400 wounded. Each corps has besides a reserve, composed of three surgeons and three assistant-surgeons. There are also 200 civil surgeons, who have volunteered their services, attached to the army; and most of the great medical and surgical authorities of Germany have been appointed inspectors and consulting officers to the army sanitary department. Altogether there are about 2700 medical men in active service with the German host. We find, however, in another part of the same paper that the Secretary at War has decreed that all medical men, who have chosen to serve as militants, should leave the fighting portion of the army, and take up medical duties, thus showing that surgeons are not too numerous.

Objective Tinnitus Aurium.—Dr. Politzer brought before the Medical Society of Vienna on June 10th, 1870, a young girl from whose left ear a rhythmical ticking can be heard. This is perceived even when the girl is asleep, and had been lasting for the last five months. This sound must not be confounded with the ordinary subjective tinnitus aurium, nor with the noise which some people can emit by contraction of the tensor tympani. The patient cannot stop the ticking, nor produce it when a pause has taken place. The sound, however, is no longer heard when the girl pronounces the German vowels *a* or *e*, nor when the velum is pressed upwards. Dr. Politzer believes that the ticking is caused by the tensor palati mollis pulling from the Eustachian tube to the velum, by drawing the mucous portion of the tube from the cartilaginous part. Dr. Gruber doubted this explanation, and would refer the ticking to the action of the tensor tympani.

Solvent for the Ear-wax.—Dr. Pétrequin, of Lyons, has published, in the *Bulletin de Thérap.*, an account of a series of experiments to find the best solvent for ear-wax. He tried successively olive oil, glycerine and oil, alcohol and olive oil, the latter mixed with oil of turpentine, ether, alkaline solutions, soap and water, chloroform, sulphuret of carbon, &c. Some were found ineffectual, and others were irritating to the aural mucous membrane. At last the author discovered that tepid water had the desired effect.

The former Medical Exiles from Rome.—Through the changes which have occurred in the Eternal City, Professor Carlo Maggiori has returned to his post, and was received with enthusiasm both by his colleague and by the students. Dr. Pantaleoni, who, being banished by the Pope, had for some years been practising at Nice, has been appointed Inspector of the Hospitals of Rome; and Dr. Toscani, a third exile, has been added to the Committee of Prison Inspection.

Lung Distemper.—This infectious and virulent malady, has broken out close to Dublin, and several farms have already been attacked. Among the rest, it has occurred at Enniskerry, near Dublin, on farms belonging to the Marquis of Powerscourt, and several cases have resulted fatally. Mr. Fergusson, veterinary surgeon to the Government, is at present investigating the outbreak.

Typhus and Dysentery among the German Troops.—The *Allg. Cent. Zeit.* of Berlin, No. 80, 1870, states that these diseases are doing great havoc around Metz. Most of the sick and wounded tended in the hospitals are suffering from the above complaints, and the death-rate has been very considerable. The wet weather and the continued fatigue are stated as the principal causes of these calamities.

The Paris Medical Papers.—Several of these have ceased to appear. We have, however, received *L'Union Médicale* up to September 17th, but not since. The editor has stated that the journal will be published in Paris as heretofore, for the benefit of the medical men beleaguered in the French capital.

German Volunteers.—The "Allg. Med. Cent. Zeit." of September 17th says that the Friedrich Wilhelm University of Berlin has sent no less than 1500 volunteers to the army, the medical faculty being particularly strong. Among the latter are several professors, as Langenbeck, Bardeleben, Rosenthal, &c.

Turkish Military Medical Organisation.—Stephen Pasha has been sent to Vienna with a view of inducing young doctors of medicine and pharmaciens to enter the Turkish army, where the medical department is to be organised upon the Austrian footing. The pay is made very attractive.

Eyeless Fish.—Four of these strange creatures have been presented to the Dublin Zoological Gardens, by Dr. Mapother, who obtained them from the Mammoth Caves of Kentucky during his late tour in America.

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Clinical Lectures

ON

DISEASES OF THE CHEST.

Delivered at Charing-Cross Hospital,

By Hyde Salter, M.D., F.R.S.,

Fellow of the Royal College of Physicians, Physician to Charing-Cross Hospital, and Lecturer on the Principles and Practice of Medicine at its Medical School.

LECTURE VII.—Part I.

ON CASES OF COMBINED MITRAL AND AORTIC REGURGITATION.

Gentlemen,—There are three cases of heart disease in the Bow ward, to which I wish to-day to call your attention. They resemble one another in many points, and all of them offer many interesting physical phenomena for our observation, and illustrate numerous important points in relation to physical diagnosis. The first is that of

Joseph H——, aged twenty-seven, a porter at this hospital, who was admitted with the symptoms of heart disease about a fortnight ago. He was quite well up to the age of twenty, when he began to have occasional attacks of "rheumatics," some of which confined him to his bed. Two years ago he had an attack of unusual severity; and this fell heavily on his heart, the other attacks having affected it but slightly, or not at all. For this attack he was admitted into St. Bartholomew's Hospital, and his heart was declared by the physicians to be affected. Every joint was involved, and he could not move a limb, even in bed. He, however, completely recovered, and was able to resume hard labor, without any shortness of breath, for two years. His duties were particularly heavy, consisting of carrying coals and other ponderous things up and down the hospital stairs.

A month ago, when out on militia drill, he caught a chill, from the severe weather and the change of clothing, and the result was an attack of rheumatism, which the regimental surgeon said was a slight attack of rheumatic fever, and for which he sent him to bed. About ten days or a fortnight afterwards he came back to resume his duties at this hospital. He worked the first day and nearly all the second, and then, from the shortness of breath that he experienced in carrying the loads up and down the stairs, he applied to Dr. Pollock, who at once detected the mischief in the heart. I then saw him, forbad him to go on with his work, and admitted him under my care.

He is of dark complexion, black eyes and hair, and thin; single, and always temperate.

Condition on admission.—Complains of palpitation and breathlessness on exertion, the heart beating very violently. Even when at rest there is a sense of weight and fulness about the heart, and a feeling as if there was something there that would be relieved by taking a deep breath; but if he does take a long breath he experiences a sense of increase of pressure, amounting almost to pain, in his left breast; he is unable to lie down at night, and consequently has very disturbed night's rests. In all other respects he is perfectly well; appetite good, and strength unimpaired.

Physical examination. — On stripping the chest, the heart's pulsations are conspicuously seen over a large area, the whole chest being agitated by its concussions, and a tremulous and wavy fluctuation being visible in the intercostal spaces, as far down as the interval between the sixth and seventh ribs, and as far to the right as the scrobiculus. At the seat of apex-beat there is a conspicuous recession at each systole, the heart being evidently withdrawn from the surface; the movement under the fifth rib, that coincides with the pulse and with the first sound, is undoubtedly a movement of recession. When, however, the fingers are applied in this situation, the recess, as far as *touch* goes, is converted into an impulse; and, even as far as *movement* goes, the recession has become impulsion to a slight degree—the fingers are slightly pushed out; but the *movement* is much less considerable than the *sense* of impulse. This is easily explained; the relaxed ventricle is soft and yielding, and does not resist the pressure of the fingers, which are therefore allowed to press forward into it; but the moment it contracts it becomes hard and rigid, and refuses any longer to yield before the digital pressure. The moment the contraction is over the muscle again becomes flaccid, and the fingers again sink into it. Thus, under the pressure of the fingers, the tactile sense of impulse, and even the movement of the fingers themselves, may be (and undoubtedly are) due, not to a corresponding movement of the heart, but to an alternation of rigidity and relaxation, of hardness and softness. And there can be no doubt, both in health and disease, that the sense of systolic impulse on the application of the fingers is due to this hardening of the ventricular muscle, and the resistance thereby offered to the pressure of the fingers, previously unresisted. The sense of arterial pulsation, in the ordinary act of feeling the pulse, admits of the same explanation. The actual enlargement of the radial artery we know to be extremely small—not more, as shown by Poisseuille, than one-twentieth of the diameter. And yet the impression of the finger is that the artery has at least doubled its volume. The change is not one of volume, but of flaccidity to tension—of non-resistance to resistance. This is well shown by the sphygmograph, in which the range of movement depends entirely on the degree of pressure which this varying tension resists and yields to: mere contact will give you no result; you must have something that will measure, not the movement, but the tension.

Although to the finger-ends the systolic impulse is plainly perceptible, yet on applying the ear to the stethoscope the principal impulsion is found to be at the diastole, there being a very fairly developed diastolic impulse. (Bear in mind, in relation to this point, the conditions present—hypertrophy and aortic regurgitation.) How are we to explain the systolic impulse to the fingers coexisting with the diastolic impulsion of the stethoscope against the ear? The one is the resistance of the hardened muscle; the other the recoil against the thoracic parietes of the relaxed hypertrophous mass, released from the systole which had just before gathered it up.

On listening at the base I could hear at first no distinct murmur, but the first sound was muffled and dull, and the second sound indistinct at the pulmonary but well marked at the aortic cartilage. I felt sure, however, in spite of the absence of regurgitant murmur, that there must be aortic regurgitation, from the character of the pulse; I thought, therefore, that though I did not hear the murmur of aortic regurgitation in its authorised situation, convection might give it me lower down; I accordingly placed the stethoscope over the left fourth cartilage, and there I heard it plain enough. Afterwards, on listening over the situation of the aortic valves with great care and patience, I could at length clearly hear a diastolic murmur starting from a well-marked second sound. The second-sound element here could not have been afforded by the valves of the pulmonary artery, as it was at the right third cartilage, and not at the left, that I heard it best. We have here then an example of sharp and tolerably complete closure (as shown by the completeness of the second sound), followed by a squirting back into the ventricle, through what must be a mere chink, of a slender thread of blood. At the apex there is a well-marked systolic souffle: to the right of the apex, from the aortic regurgitant murmur being audible, the sound is double; but to the auxillary side of it, and up towards the axilla, the aortic murmur being lost, the mitral alone survives.

We have, then, in this case mitral and aortic regurgitation, the two resulting murmurs having what I have shown to be their natural localisation.

Pulse 84, hard, strong, and full; its jerking, leaping character being moderately developed. The temporal artery is very tortuous, and its writhing, wriggling increase of tortuosity at each pulsation is very strongly marked. I infer from this strength and hardness of the pulse that the mitral regurgitation is not considerable; if it were, the amount of blood impelled forwards would be so reduced that it would not be sufficient to sustain the full, strong, hard stroke which we find. There is nothing that so reduces the importance of evidence of mitral regurgitation—that shows so positively that the regurgitation cannot be considerable—as a strong, full pulse.

Let me now read you the notes of the second case.

Thomas J——, aged twenty-nine, a healthy-looking man, with sandy beard, by occupation a parchment squarer, temperate, single, and always having led a steady and regular life, was admitted into the hospital on June 29th, suffering from the symptoms of heart disease. Fifteen years ago he had an attack of rheumatic fever. It confined him to his bed about four days, and in eighteen or twenty days he was able to resume his work; so that the attack was a light one. He had shortness of breath immediately preceding and accompanying it; but does not remember that he had pain in the chest, or palpitation. He then for ten years went on perfectly well; and then, five years ago, suffered from an attack of tightness of the chest and shortness of breath. It was brought on, he thinks, by taking cold from getting wet and not changing his clothes. The shortness of breath was increased by walking fast, or going up-stairs, or any exertion. The tightness of the chest was increased, he thinks, by taking food, and was like the pain of indigestion. This, however, is rather inconsistent with its being brought on by cold. (Were these symptoms those of endo- or peri-carditis?) He had no rheumatic symptoms at this time, and was not confined to the house, but walked down from Haverstock-hill to Salisbury-square, Fleet-street, every day, and back again in the evening. He was not, however, equal to his duties, and did little more than sit about, or walk slowly on errands. This state of things lasted from October to Christmas, when the shortness of breath left him but the so-called indigestion and the tightness of the chest still remained. Two months afterwards he was attacked with palpitation and an increase of the tightness of the chest, and he was so bad as to be confined to his room, in and out of bed, for three weeks. This was the first time that he distinctly noticed palpitation. There was no rheumatism with this second attack. In three weeks more he was able to resume his work; and from that time he ceased to be troubled with shortness of breath, or palpitation, till six months ago, when they reappeared.

Six months ago, then, the palpitation returned, with shortness of breath on exertion; it gradually developed itself, without any fresh illness that laid him up. He found that if he walked sharp his heart seemed ready to jump out of him. This has continued off and on ever since, and has on the whole gradually increased. He sleeps well, and is never disturbed at night by the shortness of his breathing. When he wakes in the morning, however, he is often troubled with palpitation—indeed, wakes up with it, but he does not think it wakes him. He has no cough or expectoration. He thinks that anything that flutters his mind and disturbs him emotionally produces palpitation more than bodily exertion.

Physical examination.—The whole præcordial region the seat of strong systolic concussion, visibly shaking all the ribs on the left side from the fourth downwards. The impulse as plainly visible beneath the sixth rib as the fifth, and the apex-beat both plainly seen and felt beneath the sixth rib, two inches outside the nipple line. Vertical distance of lowest visible impulse below the nipple a good three inches; distance from extreme left impulse to right auricle a good seven inches and a half. *Impulse sharply systolic.* Systolic rise of ribs sustained; diastolic subsidence sudden and distinct. Palpable thrill at systole over apex. At aortic cartilage a distinct diastolic whiff, commenced by a sharp and strong second sound from which it runs. At the pulmonary cartilage this diastolic bellows-sound is still louder, and at the fourth left cartilage, and working down thence, louder still. As it becomes louder, too, it becomes more prolonged, and in the last-mentioned situation extends through the whole of the pause right up to the following systole. To the true apex, to the left of the nipple line, the diastolic murmur hardly reaches; but here is found a soft but distinct systolic whiff. On reaching the nipple line, in passing towards the middle line, the diastolic murmur again becomes audible, and the systolic whiff being still heard, the murmur is here double, and reminds one strongly of a soft to-and-fro sound. In passing thence to the right and upwards, the systolic murmur is soon lost, and the diastolic becomes the single surviving murmur. I should mention that at the apex and towards the axilla the systolic murmur *replaces* the first sound—there is *no* first sound; while on passing across the nipple line to the right a loud and strong systolic sound comes into existence, from which the systolic murmur runs. All over the right ventricle this initial systolic stroke, starting the murmur, is very strong. The heart's action is catchy, unequal, and irritable; and now and then a short imperfect systole comes close on the back of another, succeeded by a pause of unusual length, so that the anticipation of its proper time by the misplaced stroke is made up, and the ultimate regularity of the beat not put out: if you go on counting regularly, the last regular stroke is at the right time, then the anticipating and imperfect stroke is too soon, and then the third stroke falls into its regular place again—the same place where it would have fallen if no previous irregularity had occurred. This falling out of place of a single abortive stroke is rather of the nature of an *intermission* than an *irregularitg*, and indeed *becomes* an intermission, or almost an intermission, at the radial pulse, where each of these abortive strokes is only registered by the feeblest indication.

Pulse 76, when sitting at rest; regurgitant arterial jerk moderately marked. Respiration 17; pulse-respiration ratio, therefore, 1 : 4½.

The first observation I would make upon the physical signs of this case is that they seem to negative the idea that the diastolic recoil of the hypertrophous ventricles, aided by the reflux of blood down into the left ventricle, can explain and cause diastolic impulse. At any rate, we have here well-developed hypertrophy with aortic regurgitation, and an impulse sharply systolic, with an equally sharp and marked diastolic recession. The regurgitation, however, is very prolonged—in fact, is only momentarily interrupted by the systole, occupying the whole interval from systole to systole with an even, sustained back-stream; so that no doubt the stream is, as in Joseph H——'s case, slender, and therefore the filling of the ventricle not "floppy." Such a case is therefore not a typical case to disprove the power of aortic regurgitation, in combination with hypertrophy, to produce diastolic impulse, if a large volume of blood suddenly refluxed from a patulous aorta upon the ventricle.

I find the interval between the heart's impulse and the radial pulse greater than usual—very conspicuous, the pulse being strikingly postponed. Can this arise from the volume of blood sent by the ventricle into the aorta at each systole finding an arterial system laxly instead of tensely filled with blood? I suppose there can be no doubt that the instantaneous propagation of the heart's pulsations to the recesses of the arterial system depends upon the tension of the arterial column of blood, upon the unity and oneness of that column, upon the tension being such that the movement of one particle involves the contemporaneous and equal movement of contiguous particles. The laxer the contents of the arterial system, the freer the movement of the particles of the blood among one another, and the less tense and rigid the arterial walls, the less immediate and instantaneous will be the propagation of the stroke of the ventricle, the more fluctuous and wave-like will it be, and the more will it be spent in the dilatation of the arterial calibre. I think anyone will realise this for himself in contemplating the difference there would be in the transmission of an impulse through a long india-rubber tube tensely filled with fluid, and through one laxly filled. The one would be by an instantaneous "thrill," the other by a leisurely propagated wave. We see just the same difference in cases of ascites: if the abdominal distension is tight, a tap on one side gives a vibration on the other that seems to be absolutely synchronous with it; but if the distension is loose a sensible interval elapses between the tap on the one side and the impact of the little succeeding wave against the fingers applied to the other. If this is so, the postponement of the radial pulse in relation to the systole might be valuable corroborative evidence (and, in the absence of murmur, valuable substantive evidence) of the existence of aortic regurgitation. It would be interesting to see if, in cases where there has been a sudden and large loss of the circulating medium (blood, not money), as, for example, after hæmorrhages, and where, therefore, the arterial contents and walls must be in a lax and not a tense condition, this postponement of the pulse in the distal arteries occurs.

I would, in the third place, direct attention to the difference of the sounds at the aortic and pulmonary cartilages. At the aortic cartilage the regurgitant murmur is not nearly so loud as it is at the pulmonary, although the regurgitation is undoubtedly aortic. How is this? Simply because the direction of the regurgitant blood-stream is to the left, and therefore carries the sound with it. It is simply a case of *convection*. I have over and over again heard aortic regurgitant murmur louder at the pulmonary than at the aortic cartilage; it is, I believe, the rule, and in this respect is the reverse of aortic obstructive murmur.

Then, again, I found this difference at the two cartilages—that while at the aortic the diastolic murmur started from a loud and strong second sound, at the pulmonary there was hardly a trace of any such initial second sound. From this we infer two things: first, that in this case the regurgitation is compatible with such a state of valves as permits sufficient sharp and energetic closure to develop the sound depending on such closure; and, secondly, that while *convection* transfers the sound of *regurgitation* at the aortic orifice more strongly to the pulmonary cartilage, *conduction* transfers the sound of *closure* at the aortic orifice more strongly to the aortic cartilage. Thus by the different direction in which sound is propagated by conduction and convection we get an analysis of the two elements of sound resulting from what is taking place at the aortic orifice. The presence of the strong initial diastolic stroke at the aortic and its absence at the pulmonary cartilage is, I think, the reverse of what we should antecedently have expected. If I had found it present at the pulmonary and absent at the aortic cartilage, I should have said —"This is perfectly intelligible and explicable; the healthy condition of the pulmonary valves permits their perfect and sharp closure, and therefore their production of a natural second sound audible at *their* cartilage, while the diseased condition of the aortic valves which permits regurgitation, by destroying their power of perfect and natural closure abolishes in them the second sound, which at the aortic cartilage is, therefore, not heard." This is what I should have said, and this is exactly what we find, as I shall point out to you in a minute or two, in regard to the sounds developed at the right and left auriculo-ventricular orifices in this very case.

But why should not the pulmonary second sound (that element of the second sound which is due to the closure of the pulmonary valves) assert itself *as much* as the aortic? There is one great reason why it should assert itself *much more*, and that is, the position of its generation being so much nearer the surface than that of the aortic element, the pulmonic valves lying almost directly in front of the aortic. And there is yet another reason, Skoda's well-known theory, adopted without question, as far as I can see, by all subsequent auscultators, that in all such disease of the left side of the heart as produces notable impediment to the pulmonary circulation, and consequent hypertension of the blood in the pulmonary artery, that portion of the second sound due to the closure of the pulmonic valves is, by virtue of that hypertension, intensified; in other words, that the second sound becomes louder at the left third cartilage than at the right. Now here we have just such a state of things as ought to produce such a condition; we have evidence of mitral regurgitation, of which, according to Skoda, this intensification of the second sound at the pulmonic cartilage is characteristic, And yet, in spite of the aortic valves being so diseased as to prevent their perfect closure, in spite of their greater remoteness from the sternum, and in spite of Skoda's dictum, we find the second sound unnaturally loud at the right third cartilage, and faint at the left. Now, how is this? Is it that the physical change in the diseased valves, while it involves incomplete closure, is such as to produce greater shock at that closure than is natural? Is it that the contents of the ventricle projected into an arterial system rendered lax by the regurgitation which has just taken place recoil with greater sway and less steadiness on the aortic valves? Is it that there is some anatomical peculiarity in the morbid change in the valves in this case that a post-mortem examination will bring to light? Is it that the blood, propelled into the aorta by the hypertrophied left ventricle with unwonted force recoils with unwonted force upon the aortic valves, and so exaggerates the aortic element of the second sound? I cannot tell which it is; probably the last. I merely ask the question, and, like Brutus in the Rostrum, "pause for a reply." At any rate, there is the fact; and, at any rate, it is a glaring violation of Skoda's theory, of which I have seen so many that I am perfectly sceptical as to its value—as to its deserving the name of a *law*. I have seen other examples of this great loudness of the second sound in cases of aortic regurgitation, and have called attention to them.

There is one more point on which I would remark—that while the mitral regurgitant murmur *supplants* the first sound at the apex, and to the left of it, no sooner do you get over the right ventricle than this same murmur is ushered in by a clear and strong first sound; over the left ventricle the first sound is lost, and you have nothing but murmur; over the right it is present, and you have sound *and* murmur. How is this? It cannot but be that the mitral element of the first sound is abolished by the disease of the valve, while the tricuspid element survives. Thus you see that in this case, while disease gives you at the mitral orifice murmur with *loss* of natural sound, it gives you at the aortic orifice, as we have just seen, murmur with *intensification* of natural sound.

LECTURE VII.—Part II.

ON CASES OF COMBINED MITRAL AND AORTIC REGURGITATION.

Case 3.—Francis C——, aged thirty-one, of dark complexion and remarkably pale, by occupation a floor-cloth printer, a calling which exposes those engaged in it to great heat, and keeps them, together with their hard labor, in perpetual perspiration, was admitted into the hospital on account of the symptoms of heart disease, on Sept. 13th. He is temperate, married, and has three healthy children. His paternal grandfather was the only rheumatic member of his family.

He was quite well up to eighteen years of age, when he was attacked with rheumatic fever. He was at that time working in a temperature of 95° F., and when profusely perspiring had often to go into the yard in the rain to fetch his work in. This attack of rheumatic fever appears to have been remarkably severe, and confined him to his bed for eighteen months; it was six months more before he was able to resume his work. During this attack he had some pain in the region of the heart and shortness of breath; but the heart was not examined. He then went on very well for seven years, doing his work as usual, and then, four years ago, experienced his second attack of rheumatic fever. He was laid up with this attack about six months, and did not during it feel any pain in his heart, or breathlessness. But about three months after he was convalescent, and before he had resumed his work, he went to Buxton to take the waters, and there the physician who examined him detected the heart disease. At the same time he began to experience some shortness of breath and palpitation, to a degree he had never done before. This gradually wore off; but if at any time he exerted himself unusually, such as by running upstairs or lifting a weight, it immediately came on. Under such circumstances a violent, stabbing, tearing pain would seize him in the left breast, accompanied by palpitation and breathlessness, and preventing his moving. Seven months ago the rheumatic symptoms appeared for the third time, but not to such a degree as to lay him up. Three months later, however, he was seized with lumbago so severely that he was obliged to give up work, and has not been able to resume it since. About six weeks later he became dropsical, his legs swelled, his scrotum, and his whole body; at the same time his heart became much worse, the cardiac distress became constant, he was obliged to be propped up with pillows at night, and the beating of the heart was so violent that it shook the bed. His water at the same time was "muddy," and dark, and scanty. The dropsical swelling lasted about five days, and then quite disappeared, leaving however a tightness round the body. The extreme heart trouble has gradually gone off, and now he experiences no discomfort unless he exerts himself, when all the old symptoms are immediately produced, and to a degree greater than ever before the last attack.

From this history I infer, that four years ago, in the second attack, although he did not during it suffer noticeably from any cardiac symptoms, it is almost certain that the heart must have been involved, as three months later he began to experience palpitation and breathlessness to a degree he had never done before, and the signs of heart disease were detected by the physician at Buxton; and that three months ago, at the time the general dropsy came on, he experienced either a fresh inflammatory attack upon the heart, or an attack of renal congestion or nephritis involving the heart functionally, or both. If the extreme heart trouble that he then suffered arose simply from an acute attack of endo- or peri-carditis, without any renal complication, the immediate appearance and the rapid disappearance of the dropsy were remarkable. I am inclined to think the dropsy was acute renal dropsy, especially as he states that his eyes were puffed of a morning, and that the swelling went down each day. It is perfectly possible that, although the dropsy was strictly renal, and the heart functionally disturbed by attendant uræmia, it may have been at that time the subject of a fresh attack of inflammation. On examining the water now, I find it free from any trace of albumen, of natural appearance, acid, and of specific gravity 1015.

Physical examination.—Beneath the fifth rib, and most conspicuously about half an inch outside the nipple line, a double impulse is seen—that is to say, two impulses going in twos; the first of the two, which almost exactly coincides with the radial pulse, is more sustained and diffused; the second is circumscribed, short, flicky, and wave-like, succeeding the radial pulse by a considerable interval. On applying the finger firmly at the point of impulse, it is strongly raised at the first of the impulses (that corresponding with the radial pulse), and not at all at the second, its pressure being quite unresisted, and the impulse unfelt. On laying the finger, however, very lightly on the surface at this point, so as just to establish contact and nothing more, it is perceptibly raised by the second impulse as well. The arterial pulsations at the neck and arms are but slightly more conspicuous than natural. There is a certain fulness at the cartilage of the fifth, sixth, and seventh ribs on the left side. At the right third cartilage a soft, blowing, prolonged diastolic murmur is heard, running from a loud and clear diastolic stroke; at the left third cartilage the murmur is perhaps slightly louder and more prolonged, and the stroke feebler; at the fourth left cartilage the murmur is perhaps still louder, but the initial diastolic stroke almost gone, so that the murmur begins nearly as softly as it terminates; at the fifth left cartilage the murmur has suddenly become very feeble, but it is audible quite down to the apex. Over the whole of this region the first sound is loud and clear, and towards the apex attended with considerable impulse; but when the apex is reached, a soft, blowing, systolic murmur is heard. The maximum intensity of this murmur seems to be at the right margin of the nipple, and it is certainly feebler, contrary to my usual experience, towards the axilla. Pulse 64, respiration 19; pulse-respiration, therefore, 1 : 3¼.

The first thing to be remarked in this case is that it is an example, as is Joseph H——'s, of rheumatic fever in a man of dark complexion. You know how often I am pointing out to you the frequency with which we find rheumatic fever and its results in people of fair complexion, with red or sandy hair and light eyes; and I fancy some of you think I ride my hobby rather hard. It is right therefore and fair that I should call your attention to any exceptions to this rule that we may meet with.

In the second place, the case exemplifies the potency of sweating in favoring the development of the rheumatic state. You could hardly conceive of circumstances more singularly favorable for the induction of rheumatism than those under which this man was working—a temperature of 92°, a streaming perspiration, and sudden chills. There is no one precursory event in the clinical history of rheumatic fever so constant as the occurrence of previous sweating. There cannot be a doubt that an amount of cold that will inevitably give a rheumatic man rheumatic fever would be utterly powerless to produce such a result in one whose skin had not been heated, I am aware that a certain school of pathologists who attribute everything to nervous influence, and start all morbid processes from deranged innervation, might say that the greater the previous heat the greater the contrast, and therefore the greater the nervous shock from the subsequent cold; and that a sweating skin is an evaporating skin, and therefore a more cooling skin than a dry one. But I believe there is something more than this; I believe that a sweating skin is a skin that is throwing off something more than a dry skin, and that a sudden check to a sweating skin throws back this something on the blood, and that the throwing back this something on the blood is intimately connected with the development of the rheumatic humoral condition.

In the third place, I would point out to you the uncertainty, when there have been several attacks of rheumatic fever, as to which one the heart affection is due. Sometimes it is impossible to decide this question, and attempting to do so is mere guesswork. You then do not know how old the heart mischief is, This sometimes affects the prognosis, because evidence of organic damage, the result of recent mischief, gives you more latitude, and more margin of hope, than the same amount of damage from old mischief. But I think in this case there can be no doubt that the heart affection dates from the second attack of rheumatic fever, four years ago, and no from the first one; because it is not likely that the symptoms of heart disease shown three months after the second attack should be attributable to a first attack separated from it by seven years of perfect health.

The case shows also that permanent heart mischief may be inflicted by rheumatism, and yet there shall not have been anything which shall have made the patient conscious of it, or directed the physician's attention to it during the attack.

As a corollary of this, this patient's history implies, what so many cases prove, that the amount of mischief and disorganisation inflicted on the valves by rheumatic endocarditis increases, and increases continuously, after, and long after, the original mischief is inflicted.

I am inclined to think that at the time of the renal dropsy (which must have undoubtedly been renal) he had a fresh inflammatory attack on the heart, and not a mere functional disturbance of it; for else how can we explain the fact that the heart symptoms have been worse since than they ever were before? The present condition of the heart is therefore the result of at least two attacks.

What interpretation are we to give to the double impulse at the apex, and what inference are we to draw from the different impression derived from firm and light pressure? No doubt we have here a particular phasis of diastolic impulse. The first impulse was undoubtedly systolic, and drove the finger before it with systolic force. The second must have depended on some feebler force, something capable of gently moving the yielding intercostal parietes, but incapable of resisting the pressure of the finger—either the recoil of the relaxed ventricle, or the sudden filling of it with the regurgitating blood, or some other unexplained cause.

Let me point out to you the non-postponement (to any material degree) of the radial pulse in this case of aortic regurgitation—its immediate sequence on the systolic, and anticipation of the diastolic sound and murmur.

Observe, too, the peculiar relation of the diastolic sound to the diastolic murmur at the third right, third left, and fourth left cartilages, so exactly coinciding with the same characteristics in Thomas J—— and Joseph H——, and so well illustrating the different results of convection and conduction.

Lastly, note the exceptional point of maximum intensity of the mitral systolic murmur in this case —the level of the nipple, and immediately to its right. What should make it take up such a position I am quite unable to explain to you.

Let me, in conclusion, point out to you how many peculiarities these three cases have in common. In all of them the nature of the lesion is the same, double regurgitant, giving a systolic apex and a diastolic basic murmur; in all we have considerable hypertrophy; in all the aortic regurgitation comports with well-developed second sound; in all the second sound is louder at the aortic than at the pulmonary cartilage; in all we reach the point of maximum intensity of the aortic regurgitant murmur on leaving the neighborhood of the aortic valves and descending to the left; in all the relative situation and distribution of the two murmurs is the same, overlapping in the neighborhood of the nipple line and apex, but to the right and left of this, single; in all there was moderately marked regurgitant pulse.

But in spite of all these points of resemblance, there is one point in which they are strongly contrasted—that while in the case of Joseph H—— there is fairly developed *diastolic impulse*, in that of Thomas J—— there is not a trace of it, while in Francis C—— there is that which we must regard as a modified representative of it. This, I must confess, conflicts with an idea that I had conceived as to the cause of this phenomenon. In several cases in which I have observed it there has been a concurrence of aortic regurgitation with hypertrophy, and I had imagined that it might depend, as I have already hinted to you, on the reflux of blood from the aorta down into the ventricle, aided by the recoil of the massive ventricles against the thoracic parietes when released from the systolic contraction which had just gathered them up and withdrawn them in a degree from their passive and expanded contact with the chest wall. This, I thought, might be its physical explanation; but here, in the case of Thomas J——, we have these two very things, the regurgitation and the hypertrophy, and yet we have not a trace of diastolic impulse. We must therefore cast about for some other explanation of it; or, rather, we must keep our minds in an inquiring and receptive state, that we may detect and recognise any other explanation that may develop itself.

There is one point in the case of Joseph H—— that I had wellnigh forgotten, on the strength of which I would give you a warning. You may remember that on first listening at the base of the heart I could hear no evidence of aortic regurgitation; but feeling convinced, from the character of the pulse, that such regurgitation existed, I listened for the murmur over the fourth left cartilage, and there immediately heard it. Now let me warn you, on the strength of this, not to conclude that because you do not hear a diastolic murmur over the root of the aorta there is no aortic regurgitation. You must not always go to the base to hear a basic murmur. Aortic regurgitant murmur is always spoken of as a basic; and it is of course basic as to the seat of its generation; but the place at which a murmur is generated is one thing, and the place at which it is heard is another. I have shown you in a former lecture to what a distance from the seat of their formation convection will transfer cardiac murmurs, and how much more audible they may be, under the influence of this cause, at a distance from the seat of their development than near it. No murmur illustrates this better than that of aortic regurgitation. It is so common to hear this murmur louder towards the apex than at the base, that I have ceased to look upon that as anything remarkable; and this case of Joseph H——'s is by no means the first in which a diastolic whiff at the fourth or fifth cartilage has shown me the existence of aortic regugitation, of which there was no sound over the aortic valves to raise the slightest suspicion. I believe that the time is not far distant when the doctrines which I preach to you on this subject will be generally received and taught, and when students will be told that they will have often to look for a basic murmur at the apex, and for an apex murmur at the axilla.

Clinical Lectures

ON MEDICINE.

Delivered at the Middlesex Hospital.

By **Charles Murchison**, M.D., LL.D., F.R.S.,

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Practice of Medicine; Consulting Physician and Vice-President
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LECTURE IV.

1. *Case of Rötheln, or German Measels.*

Gentlemen,—The case of Elizabeth R——, who was discharged from the hospital a few days ago, is one that deserves your careful attention.

Elizabeth R——, aged fifteen, was admitted into the Middlesex Hospital on April 14th, 1870. She was house-maid in a gentlemen's family. She had had an attack of measles at the age of four, and of scarlet fever at the age of six. On the morning of April 12th she had been quite well, and in the evening she had first complained of headache, loss of appetite, chilliness, and running from the eyes. During the following night she had been very restless and thirsty, and on the morning of the 13th she noticed an eruption on the face, which soon extended over the whole body. The throat from the first had been slightly sore, but there had been no sneezing nor cough.

On admission, the girl did not look very ill, but her face, chest, arms, legs, and entire body were covered with an eruption consisting of irregular patches, at many places running into one another so as to form a large red space, but at others quite isolated. The whole eruption presented very much the appearance of measles, but the patches were less crescentic in outline, and had nowhere a decidedly papular character. Skin dry; temperature 101; pulse 132. The patient sneezed several times within two or three hours of admission, and had a slight running from the nose, and a watery discharge from the eyes, but the conjunctivæ were not injected, and there was no cough nor bronchitic râles in the chest. The tongue was moist, coated with a thin white fur, and red at the edges, but there was no marked enlargement of the papillæ. The throat was still sore; the soft palate and fauces were vividly injected, and the follicles enlarged; both tonsils were large and red, but free from ulceration or membrane. An effervescing citrate of potash draught was prescribed. In the evening the temperature rose to 103·2°. The patient did not sleep well, and next morning (April 15th) she still complained of pain and dryness of the throat; she had frequent sneezing, and the eyes were still watery. The temperature was 101·4°, and pulse 128. No urine had been passed since admission. The appearance of the eruption was quite altered. Over the hands and arms it formed a continuous bright redness, like the eruption of scarlet fever; but over the front of the chest it had still a mottled character, although the patches ran into one another much more than on admission. On April 16th, or the fifth day of the attack, the patient was much better. The pulse was 100, and temperature 99°. She had slept well, and had no cough, sneezing, running from the eyes, nor sore-throat. The tongue was clean and red, and the appetite was returning. Urine abundant, alkaline, 1030; no albumen. The eruption had almost disappeared from the face, but was still abundant and more confluent on the trunk and extremities. On April 17th all sign of fever was gone, but traces of the eruption were visible till the 19th. During convalescence there was abundant branny desquamation, but no albumen in the urine. On April 30th the patient left the hospital.

On April 14th I was called to see a young lady residing in the same house as Elizabeth R——, who had been taken on the same day with similar symptoms, followed next morning by an eruption all over the body, which at the time of my visit presented precisely the same characters as those above described. This child's attack was milder than even that of Elizabeth R——. The fever was very slight; and on April 16th the eruption had quite left the face, but was still visible on the legs. About ten or fourteen days subsequently, a second child in the same family had a similar attack.

The ailment from which these patients suffered is not generally recognised as a distinct disease; and cases of it, when they occur, are apt to be puzzling, and sometimes to get the medical attendant into trouble from his inability to determine their real nature. Yet, on the whole, they are not very rare. To explain the pathological relations of the disease, and also the reason of its being called "German measles," it is necessary to depart from the usual custom of a clinical lecture, and go into a little detail respecting the early history of measles and scarlet fever.

Measles and scarlet fever were long regarded as varieties of small-pox. Measles was first distinguished from variola by Abu Dschafar and other Arabian physicians in the twelfth century; but measles and scarlet fever continued to be looked upon as one disease, which was designated "morbilli." An Italian physician, Phillip Ingrassias, of Palermo, in the middle of the sixteenth century, first described scarlet fever, which he called "rossalia," as distinct from the morbilli or measles. He pointed out that the rash of the former differed from that of the latter in being attended by little tumefaction, and in being diffuse like that of erysipelas, the whole skin looking as if it were on fire. He adds: "Nonnulli sunt qui *morbillos* idem cum *rossalia* existimant; nos autem sœpe distinctos esse affectus, nostrismet oculis, non aliorum duntaxat relationi confidentes, inspeximus." The term "scarlatina" is said to have been the vernacular name for the disease on the shores of the Levant, and was first adopted in a medical work by Prosper Martianus, another Italian physician, who, about the middle of the sixteenth century, also described the disease as distinct from morbilli. Epidemics of scarlet fever were first described in this country by Sydenham in 1676, and about the same time in Scotland by Sir Robert Sibbald, physician to Charles II., and in the middle of last century by Fothergill and Huxham. But, notwithstanding the accurate descriptions of these distinguished observers, scarlet fever and measles continued to be regarded by many physicians as mere varieties of one disease, the former being often styled "morbilli confluentes"; and the matter was only finally set at rest by Dr. William Withering in his classical essay published in 1779.*

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* An Account of the Scarlet Fever and Sore-throat. London, 1779.

Shortly before (1768), the two diseases had been separated by Sauvages in his Nosology, and he was the first to call measles "rubeola," instead of "morbilli," by which name it had always been known before. This new name, "rubeola," was adopted by Cullen in his Nosology, published four years later (1772).

The disease which I wish at present to bring under your notice was separated from measles and scarlet fever at a still later date. It was first described by German physicians about the end of the last and the beginning of the present century, and particularly by Ziegler, Heim,[*] and Hildenbrand.[†] The last of these writers called the new disease "rubeola," and retained the name "morbilli" for measles proper; and this nomenclature has been adopted by many subsequent German writers, including Schönlein; whereas English writers, with the exception of Dr. Copland, have followed Cullen's nosology, and called ordinary measles "rubeola." Hence the rubeola of many German writers is not the rubeola of English nosologists, and when the new disease came to be recognised in England it was often designated "German rubeola or measles." There are, however, many other names by which it is known—such as rötheln, feüermasern, scarlalatina morbillosa, morbilli scarlatinosi, rubeola notha, bastard measles or scarlatina, hybrid measles or scarlatina, &c.

In this country the disease has been well described by Dr. Robert Paterson, who observed it epidemic in Leith and its neighborhood in 1840[‡]; and by Dr. G. W. Balfour, who in 1857 had an opportunity of studying another epidemic of it in the vicinity of Edinburgh.[§]

The existence of the disease, however, is still far from being generally recognised. With the exception of Copland and Aitken, few systematic writers in this country even refer to it. There is no allusion to it in Watson's classical lectures, nor in the new nomenclature of the Royal College of Physicians. Tanner mentions it, but thinks it unnecessary to describe it; while in Reynolds's System of Medicine it is only alluded to as an error in diagnosis. Its existence as an independent disease is also doubted by many foreign physicians. Niemeyer, in his Text-book of Practical Medicine,[||] speaks of cases of scarlet fever with a rash like measles (rubeola scarlatinosa), and of measles with a rash like scarlet fever (rubeola morbillosa), but regards them as mere modifications of measles or scarlet fever. Hebra also, in his great work on Diseases of the Skin, refuses to admit the specific distinctness of rötheln.[¶] The result is that few practitioners are acquainted with the disease, and many have never heard of it; and it is usually treated as a variety of measles or scarlet fever, although every now and then a medical man of more than usual discernment describes it in the journals as a new or anomalous exanthem.

But, whatever view we take of its pathology, the characters of the disease are sufficiently explicit, and deserve to be generally known. They may be briefly enumerated under the following heads:—

1. *Premonitory fever*, with pains in the limbs and sometimes in the back; sore-throat, with redness and swelling of the tonsils and fauces, coryza, sneezing, and catarrh of the respiratory passages. In all cases there is sore-throat; but the catarrh may be slight, or sometimes absent. Occasionally there is vomiting. Most authors fix the duration of this stage at about three days, the eruption being said to appear on the third or fourth day; but in my experience its duration, as in the case you have seen in the wards, has been sometimes much shorter, the rash appearing on the second day, or even within the first twenty-four hours.

2. *The rash* appears first on the breast and arms, but sometimes first on the face, and soon becomes universal. It consists of red elevated stigmata or dots, which run together into irregular patches, with obtuse blunt angles, something like those of measles; but, after a time, these patches usually coalesce, and the whole skin becomes uniformly red, as in scarlet fever. The eruption is copious, in a direct ratio to the severity of the general symptoms. It lasts longer, as a rule, than the rash of either measles or scarlet fever—from four to ten days. Its disappearance is followed by a desquamation of branny scales.

3. With the appearance of the rash the other symptoms are aggravated, and there is *a combination of scarlatinous angina and tongue with morbillous catarrh.* The throat is always sore, and the tonsils swollen and red; but the latter are rarely ulcerated. The swelling in the throat may be so great that the patient is unable to swallow; and occasionally, but not often, the glands in the neck suppurate. The tongue, which at first is white and coated, usually becomes after a few days clean and red, and the papillæ may be large and prominent, exactly as in the tongue of scarlet fever. But with all this there is more or less catarrh of the nasal and respiratory passages and coryza, and sometimes there is severe bronchitis, the suffering from which is greatly aggravated by the swelling in the throat. It is a mistake, therefore, to speak of rötheln as identical with what has been called "rubeola sine catarrho."

The disease can propagate itself. Many writers, like Copland, regard rötheln as a hybrid between measles and scarlet fever; and there are several circumstances which lend weight to this view—such as the fact that the disease presents the characters of both measles and scarlet fever combined, those of measles in one case, or of scarlet fever in another, or at different periods in the same case, being the more prominent; so that the two diseases are sometimes believed to occur simultaneously in the same house, or the one is thought to pass into the other in the same individual; or, again, the circumstance that rötheln has often been observed when measles and scarlet fever have both been epidemic. It is not correct, however, to say, as Hebra does, that rötheln occurs only in the sporadic form. Epidemics of it have been observed in Germany and Scotland.[*] But a curious and important fact is that, when the disease spreads, it does not propagate either measles or scarlet fever, as a hybrid of these two diseases might be expected to do, but a disease like itself. Of this I have had good evidence on several occasions; and the cases which I have brought under your notice furnish an additional illustration of the fact.

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[*] Heim in Hufeland's Journal, 1812.

[†] Hildenbrand, Inst. Pract. Med., vol. iv., 412.

[‡] R. Paterson: An account of the Rotheln of German Authors, with a few observations on the Disease as it has been seen to prevail in Leith and its neighborhood. (Edin. Med. and Surg. Journ., Ap. 1840, p. 381.)

[§] G. W. Balfour: Notice of an Epidemic of Rotheln—Rubeola? (Edin. Med. Journ., 1856-57, p. 717.)

[||] Vol. ii., p. 543, American Transl.

[¶] Syd. Soc. Ed., vol. i., pp. 166, 167, 299.

[*] R. Paterson, loc. cit., p. 386.

5. It has been a common observation by those who have paid attention to the subject that *rötheln does not protect from either measles or scarlet fever, and that a previous attack of either of these diseases does not protect from it.** Both of the patients whose cases I have described to you had previously passed through attacks of scarlet fever and measles.

From these considerations it is obvious that rötheln, although partaking of the characters of both measles and scarlet fever, has some claim to be reckoned specifically distinct from both.

Prognosis.—The disease is in most instances mild, and a much more favorable prognosis may be formed than in true scarlet fever. Occasionally, however, the disease is severe or fatal, and in rare instances it is followed by dropsy.

The only *treatment* required in most cases is that the patient should remain in bed, and take a mild aperient, followed by a saline diaphoretic mixture. Occasionally the guttural or catarrhal symptoms will require special treatment.

II. *Hydrate of Chloral in Pertussis.*

The next case illustrates the good effects of the hydrate of chloral in subduing the spasmodic cough of pertussis. The patient was a little girl, aged four, who was admitted on April 11th, suffering from severe pertussis of about six weeks' duration, complicated with pneumonia and bronchitis. Various remedies, including belladonna and ipecacuanha, produced little or no effect upon the paroxysms; but improvement at once followed the use of chloral in doses of five grains every four hours, and within a week the paroxysms had almost ceased. [Details of case given.]

III. *Treatment of Delirium Tremens.*

You have lately had under your observation in the wards several cases of delirium tremens. I purpose to conclude this lecture by bringing them briefly under your notice, more especially in reference to the vexed question of treatment.

CASE 1.—W. P——, aged thirty-four, in H.M. Civil Service; admitted January 17th. For six years had been very intemperate, and had five previous attacks of delirium tremens, none very severe. Symptoms in this attack of moderate severity; no albumen in urine. Treatment: Bark and mineral acids; and for two nights a draught with fifteen minims of solution of opium; nutritious food, but no stimulants. Discharged well on Feb. 1st.

CASE 2.—Erskine W——, aged thirty-five, a surgeon; admitted April 4th. His father had suffered from gout, and his mother was insane. He had had a good deal of mental anxiety, had been drinking hard for twelve months, and had been several times on the verge of delirium tremens. Sixteen hours before admission he was seized for the first time with severe epileptic convulsions, foaming at the mouth and biting the tongue &c.; and before being brought to hospital there had been sixteen fits in all. On admission, quite unconscious, but no stertor; occasionally delirious and excited; urine contains one-fifteenth of albumen; area of hepatic dulness contracted; breath offensive. He was freely purged with croton oil and enemata, and took a mixture of bromide of potassium and carbonate of ammonia, with milk and beef-tea, and four ounces of brandy (ordered by one of the resident medical officers). One or two fits occurred after admission, but on April 6th there had been no recurrence of them for thirty-six hours, and he seemed quite conscious. On the same evening, however, well-marked symptoms of delirium set in. He slept none, and next day was very excited, and had a quick (100) intermitting pulse. Half a drachm of hydrate of chloral, in conjunction with ammonia, was now ordered every four hours, but no alcohol. After the second dose he went to sleep, and awoke after fourteen hours free from all illusions. From that time until his discharge from the hospital on April 16th, he remained free from convulsions and from any symptoms of delirium tremens, and all trace of albumen disappeared from the urine.

CASE 3.—Walter W——, aged thirty-nine, a surgeon, admitted April 9th. He had an unmistakable history of phthisis, and in both lungs were extensive signs of tubercular infiltration in an advanced stage; and there was also recent pneumonia with rusty sputa in the upper lobe of the left lung. For many years he had been very intemperate, and for six weeks he had been drinking very hard. On admission, he was in a state of delirium tremens; had not slept for several nights; was very excited; threatened to shoot his wife, &c. Urine contained one-third albumen. He was ordered half a drachm of chloral every four hours. After the fourth dose he had a prolonged sleep, on awaking from which the symptoms of delirium tremens had almost disappeared; but he rapidly sank from an extension of the pulmonary mischief, and died on April 12th, at 8.30 P.M. Brandy (six ounces) was allowed on account of the phthisis.

CASE 4.—William S——, aged forty, a butler, admitted April 27th. Been very intemperate for many years, and drinking very hard, mostly gin, for one month. Delirium tremens set in three days before admission. Pulse 108; frequent vomiting; nothing retained on stomach; urine scanty, and contained one-third albumen; liver large and tender. He was first ordered bismuth and chloral (half a drachm every four hours), and sinapisms to epigastrium. No stimulants. After six doses the vomiting had quite ceased, but there had been no sleep. He was now ordered a draught every four hours with fifteen minims of tincture of digitalis and four grains of carbonate of ammonia, and to continue the chloral. Under this treatment he slept at intervals on the night of the 29th, and soundly on that of the 30th. On May 1st the symptoms of delirium tremens had passed away, the appetite was returning, and the albumen had quite disappeared from the urine. On two or three occasions subsequently he had symptoms of congested liver and restless nights, requiring a return to aperients and the digitalis and chloral; but when he was discharged, quite well, on May 30th, his urine was still free from albumen.

The observation of these cases must have impressed upon your memories the leading symptoms of delirium tremens. It is not my present intention to describe them to you in detail, but I may remind you that they are mainly three—viz., 1. Sleeplessness; 2. Illusions and delusions of a peculiar form; and 3. Tremors of the muscles. Among other less frequent symptoms which you must have noticed are, a quick, soft pulse, without any rise of temperature; white, furred tongue; loss of appetite; and craving for stimulants; offensive breath; vomiting; and injected conjunctivæ.

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* G. W. Balfour, loc. cit., p. 719; R. Paterson, loc. cit., p. 387; also Ed. Med. Journ., 1855-6, p. 1133.

But it is to the treatment of delirium tremens that I wish more particularly to call your attention. The objects in treatment are twofold: first and foremost, to procure sleep; and secondly, to induce the patient to substitute solid food for alcoholic stimulants.

1. Most medical men are agreed that sleep is the great desideratum in delirium tremens; but there is great difference of opinion as to the best way of inducing it. Let us briefly review the remedial measures which are most relied on.

(*a*) *Alcohol.*—It has been contended that delirium tremens is almost invariably the result of abstaining from stimulants by a person who has been previously intemperate, and that the best way of inducing sleep is to administer brandy and other alcoholic stimulants in frequently repeated doses. According to my experience this doctrine is founded on error, and the practice is most pernicious. You will have noticed that all our patients had been drinking hard up to the commencement of the symptoms, and this I believe to be the rule. Give alcohol, and you only add fuel to the fire, and keep up congestion of the stomach, liver, and kidneys. Medical men, in my opinion, dread too much the consequences of withdrawing alcohol in the treatment of delirium tremens. I have long been in the practice of giving none, except in cases where there has been evidence of fatty heart, or an intermitting pulse, or there has been some complication calling for its use, as in Case 3. The patient no doubt often experiences considerable distress, but I have never seen any bad consequence from suddenly cutting off the large supply of alcohol in which he has been indulging before the attack. This result of my former experience has been borne out by the cases which have been under your observation.

(*b*) *Food.* In all cases it is well that the patient should have as much nutritious food as he can digest. Some authorities contend that all that is necessary to induce sleep is to give strong beef-tea and other nutriment of a like nature. This, and abstaining from stimulants, will no doubt suffice to effect a cure in mild cases; but that sleep will follow this in severe cases is quite opposed to my experience, while in not a few bad cases there is congestion of the stomach and liver, and food of all kinds is rejected. It is necessary, therefore, to be provided with other means for inducing sleep.

(*c*) *Opium* and its preparations were for a long time the drugs chiefly relied on for inducing sleep in delirium tremens. Of late years they have fallen into discredit, and now many practitioners never have recourse to them. Experience shows that in many cases opium acts like a charm in speedily putting an end to the disease; while in others it fails entirely in inducing sleep, or may aggravate the symptoms, or even cause convulsions and coma. The question at once arises: Is there no explanation of this difference?—is it impossible to say when opium is likely to succeed or not?—or must we, from being uncertain of the result, adjure the use of opium altogether? My opinion is that an explanation of the difference is to be found in the state of the kidneys, as indicated by the characters of the urine. Whenever the urine contains albumen as the result of recent congestion or old disease of the kidneys, opium is almost certain to fail, or even prove injurious; and, accordingly, it is a good rule never to give opium until an opportunity has been offered to test the urine. But when the urine has been ascertained to be free from albumen, opium may be given without fear, and usually with the best results. Whatever preparation is employed, it is best to commence with a full dose, and give a smaller dose every three hours afterwards until sleep ensues. When the skin is dry, or the patient much excited, the opium may be advantageously combined with antimony, in the manner recommended by the late Dr. Graves.

(*d*) *Digitalis* is another remedy of undoubted power in the treatment of delirium tremens. It is particularly indicated in cases where the urine is scanty or contains albumen, or where the patient is very excited. I have known it to act most beneficially in cases where opium had failed. Its good effect is not attributable to the alcohol of the tincture, for the large doses recommended by the late Mr. Jones, of Jersey, are quite unnecessary. It appears to act mainly in virtue of its sedative, and yet tonic, influence over the organs of circulation; while the large flow of urine following its use makes it probable that it assists in the removal of deleterious matters from the blood. From fifteen to thirty minims of the tincture may be given, with or without carbonate of ammonia, every four hours.

(*e*) *Bromide of potassium* has been strongly recommended for delirium tremens; but in severe cases I have not found it alone of much service in securing sleep, although it has seemed to act beneficially in moderating active delirium or mental excitement.

(*f*) *Hydrate of chloral.* Delirium tremens is one of the many maladies in which this new drug has been used with advantage. It is a remedy for inducing sleep which is particularly applicable in those cases where opium is contraindicated. It does not, like opium, interfere with elimination by the kidneys; and indeed there are grounds for believing that the existing impurities of the blood favor the action of the chloral by assisting in the liberation of chloroform. One caution is necessary with regard to it. Not only in delirium tremens, but in other diseases, the first action of the chloral (like that of an insufficient dose of chloroform) is exciting rather than sedative. You must not on that account infer that it is acting injuriously, for a second dose will often produce the desired sleep. The best way to give it is in doses of half a drachm every two or three hours until sleep results.

These are the remedies to which you must mainly trust for inducing sleep in delirium tremens; but remember that the action of all of them will be materially assisted by a kind and considerate and yet firm manner towards the unfortunate patient, by never flatly contradicting him, and by avoiding as far as possible all appearance of bodily restraint.

2. The patient must be brought as soon as possible to substitute solid food for alcoholic stimulants. For this end it may be necessary in the first place to remove congestion of the stomach and liver by counter-irritation, aperients, bismuth, &c.; and when the stomach is in a quiet state, the appetite may be stimulated by the mineral acids, quinine, and other bitter tonics. In private practice, where it is sometimes impossible to cut off stimulants to the desired extent, it is a good rule to insist that they shall never be taken unless with solid food.

Clinical Lectures.

ON

SOME STRAY SUBJECTS OF HOSPITAL SURGERY.

By Frederic C. Skey, C.B., F.R.S.,

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LECTURE VII.

SYPHILIS.

There are yet to be found advocates of the time-honored creed of the introduction of syphilis into Europe at the latter end of the fifteenth century. Looking to the evidence to be adduced in opposition to the creed in question, it would appear a difficult case to maintain by argument, seeing that no light has ever been thrown upon the source from which it emanated or the direction in which it travelled before it was implanted in Europe; and, again, it cannot be disputed or denied that the disease of that time bears more than the remotest resemblance to that we now recognise as syphilis. Among poisons affecting the human frame, true syphilis is, under judicious management, one of the least virulent and the least destructive. Its liability to be transferred from one to the other sex, and to implicate the fœtus in utero, is no evidence of virulence.

As regards primary sores, I must condense the remarks I have to make into the smallest compass. *Three-fourths* of all primary sores obtained by sexual intercourse are not syphilitic; they are termed soft sores, and they never affect the constitution to whatever size they may extend, and they do occasionally extend to the magnitude of a finger-nail. The glands of the groin may, as in gonorrhœa, be involved, and may suppurate. Like gonorrhœa, the soft or common sore has a stage of advance, maturity, and subsidence by the hand of unaided nature. The sore recoils from interference by art or science. The syphilitic poison involves the constitution. It is not necessarily the product of the hard sore, though generally so. The hardness of a sore, when present, is palpable; but a sore primarily destitute of hardness may, like the sore primarily hard, involve the constitution. And in this notorious fact consists one of the greatest difficulties of diagnosis in venereal disease; because we have not arrived at such precision of knowledge as enables us to distinguish the soft sore that accomplishes its full career without involving the constitution, and that other soft sore which becomes more or less hard during its progress, and which almost inevitably leads to secondary disease. The hard sore is the product of a deposit of syphilitic thickening. The thickening is the immediate result of the absorption of syphilitic matter. The poison has been absorbed through the delicate membrane of the prepuce or glans, rarely through the external integument, and is supposed to have involved the constitution contemporaneously with the local deposit, and therefore that auto-inoculation, or the inoculation of the individual with the matter from his own sore, fails, according to the creed of many surgeons, especially of the French school. In the case of the hard sore, the disease consists in the induration itself, rather than in the sore, if there be a sore, for the deposit may exist without any abrasion of surface whatever. The hard sore is tardy in its appearance, sometimes following intercourse at the interval of ten, fifteen, or twenty days. As a rule it is painless. The sore continues for a time to increase in size. It may present itself as a hollowed-out cavity, secreting sparingly an ichor; or, secondly, as a red-raw abrasion on a large hard base or mass; or, thirdly, as a solid tubercle under the skin which is unbroken: the latter form is, however, rare. The inguinal glands enlarge and become hard. They swell without involving the tissues around, as occurs in the inguinal enlargements of the common soft sores. They never suppurate, but continue hard throughout.

Thus matters remain, whether mercurial or other treatment be adopted or not, until the constitution gives evidence of the presence of the poison in the system. This becomes manifest in the course of five or six weeks. The first indication of constitutional derangement consists in the presence of fever, or rather of febrile symptoms, such as chilliness, quick pulse, followed by a sense of lassitude, pain of a rheumatic character in the joints. On the subsidence of this stage, sore-throat follows, for the most part painless, involving chiefly the arches of the palate. An eruption, resembling roseola, appears on the chest and abdomen, the arms, thighs, and forehead, and often on the entire surface of the back. In some cases this eruption assumes the nature of psoriasis or lepra; in which case it is limited more generally to the front of the trunk and anterior surface of the arms. These two forms of eruption, very dissimilar in character as I believe, hold a relation to the two different forms of primary sore. I think you will find that the hard sore, which is destitute of pain, has little moisture exuding from its surface, that appears late after intercourse, and the progress of which is more than ordinarily slow, is followed by the dry forms of eruption, such as psoriasis and lepra. Concurrently with, or shortly following, the eruptive stage, is frequent enlargement of the posterior cervical glands, and the partial loss of the hair, termed alocepia. Then follow small ulcers on the tongue, gums, and inner surface of the lips; ulcers of the tonsils, and occasionally honeycomb desquamation of the palms; iritis, and painless enlargement of the testicle. In the yet more advanced stage, we find deposits of fibro-plastic matter in all the tissues.

How far all these manifestations of constitutional syphilis are modified by peculiarities of constitution, we are uncertain; but I think there need be little hesitation in asserting that they are so modified.

Before I proceed to the important subject of treatment, I will briefly refer to two questions, yet *sub judice:* first, the liability to a recurrence of syphilis in a person who has been once syphilised; and, secondly, the period after apparent recovery at which marriage is justifiable.

As regards the first question, I do not think the evidence of exemption from a second attack is by any means conclusive.*

The second question is a far more critical one, involving the health and happiness of many, and should be answered only after the full deliberation due to the important issues arising out of it. In a few words, I would suggest that it is not so much a question of time as of degree. Some authorities, of doubtful weight, however, deem marriage unsafe for life; others sanction marriage at the expiration of a short term of months. It is notorious to all that the disease is recurrent—that few subjects escape a second and even a third relapse. I consider that our opinion in respect to this question should be founded on the history of the past—whether the attack has been mild or severe, whether the intervals have been brief or prolonged, and especially from the fact of each relapse being less marked and severe than the previous one when the poison would appear to have died out. Under these conditions, if favorable, after a period of from four to six months, during which no indication of the poison has appeared in the system, I think marriage may be sanctioned by the surgeon; but if the disease be insidious in its character, and peer out in any shape however slight, the poison is yet present, and marriage is unsafe, and should be indefinitely postponed.

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* Vide Government Report on Venereal Disease.

Treatment of the local sore.—If the local sore can be subjected to treatment within a term of three days, free cauterisation with nitric acid, or other escharotic, will generally convert it into an innocuous ulcer. After three or four days the treatment throughout should be purely negative. No specific agents are useful. Simple dressing of spermaceti is as good as any other. In the latter stage, or that which immediately precedes cicatrisation, the nitrous oxide of mercury ointment will accelerate the healing process. No condition of this sore in any of its well-marked stages can warrant the employment of mercury. If the soft sore in its progress show a tendency to deposition beneath it, and it assume the condition of induration, although the indurated base exhibits less dimensions than the primary hard sore, yet the question of mercury immediately occurs to the mind of the surgeon.

And on the subject of mercury I must occupy your attention for a few minutes. The influence that mercury exercises on the deposit of hard sores has been long known to the medical world. By Mr. Hunter it was resorted to indiscriminately in all forms of venereal sores, and it is perhaps not surprising that his successors (excepting always the school of Abernethy) should have resorted to mercury as the great and universal antidote to venereal sores, whether hard or soft, whether local or constitutional. But since venereal diseases have become the subject of more critical observation, our lines of demarcation are more closely defined; and while we are compelled to resort to mercury in some forms of the disease, we as rigidly eschew it in others.

The action of mercury tends to increase the secretions of the body, and at the same time to promote absorption of morbid deposits. It cannot be said to exercise any direct influence on the *poison* of syphilis, but only on the effects or consequences of the poison. It is not to be considered as exercising the power of a specific, because it cannot destroy the poison. It has the power to lessen and to obtain absorption of the hard deposit, but the poison remains behind to develop itself hereafter. If it were a specific, if it possessed the power to directly neutralise the poison, a man under salivation would be unsusceptible to the influence of the disease after intercourse, which he assuredly is not. It is not very uncommon for the eruptive stage to appear during the treatment by mercury for the primary sore. I believe a course of mercury, if exhibited with due care and moderation, is not necessarily injurious to the health; but it is painful to read the frightful and often fatal extremes to which it was carried in the early part of this century. As almost a matter of course, surgeons resort to mercury in every variety of hard sore, because it would appear to be a great object to attain the absorption of the thickened or indurated mass, and to heal the ulcer upon it. But is this object so essential as it appears? Look to the evidence on this head given by many eminent members of our profession before the Admiralty Committee.* You will learn therefrom that great doubts cling to the minds of some of these eminent men whether the treatment of primary sores by mercury tends either to prolong the interval before the secondary or constitutional symptoms develop themselves, or to lessen their severity when they do appear. In whatever form you administer mercury, watch carefully its effects on the local disease and on the constitution. As the hardness subsides, reduce the dose in a relation to the influence it appears to exercise. Avoid salivation in every stage, and maintain your patient's strength throughout. In the constitutional or eruptive stage, when it assumes the dry forms of psoriasis or of lepra, mercury is less injurious to the health in protracted cases; but employ it sparingly in all moist eruptions, vesicular, pustular, or impetiginoid. A great and valuable adjunct is ever found in iodine, and the iodide of potash, in doses from five to fifteen grains, will often supersede the employment of mercury entirely. It may be combined with full doses of the tincture of bark.

With this very imperfect sketch of syphilis I conclude with a brief reference to the subject of phagedæna. Do not mistake phagedæna for syphilis; and here I speak with some hesitation, knowing that the two diseases are not unfrequently confounded. Syphilis is characterised by a hard deposit, phagedæna by destruction of tissue. This destructive process is obtained by active ulceration or by sloughing; sometimes both processes are united in the same wound. Commencing from a local venereal sore, the sore extends, ulcerates rapidly, sloughs, and burrows beneath the surrounding tissue. The local actions may be destroyed by nitric acid, but the disease bursts out in the form of an eruption, which quickly develops in that of active and destructive ulceration in any part of the surface of the whole body. As to treatment, I would say, any remedy but mercury. Iodides of iron and potash, good air, ample diet, wine in moderation, and nitric acid (pure or diluted), locally applied in proportion to the activity of the destructive local actions.

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* Report of Committee. *Vide* evidence of Langston Parker, Jonathan Hutchinson, S. A. Lane, and others.

Original Papers.

WHAT WE OBSERVED DURING A RECENT VISIT TO THE SEAT OF WAR.

BY

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AND

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Taking Brussels for our starting-point, we proceeded, on Sept. 23rd, 1870, to Poix St. Hubert by rail; and thence by diligence, through a very interesting country, to Bouillon—a small town on the river Stenay, on the main road to Sedan. Here we began to notice some of the effects of war. The place was crowded; and there were about 100 wounded soldiers in the village, under the care of the Prussians, scattered in various buidings. Dysentery was rife. The patients were dying at the rate of about six a day; but we could not learn any particulars of the cases. We heard first of the magnitude and difficulties of the transport of stores and wounded at Bouillon, horses and carts being required for purely military service; so that some of the officers connected with the ambulances were often under the necessity of walking to and from Sedan to Bouillon and the nearest railway town, a distance of twenty-six miles. Food was scarce, owing to the immense number of soldiers and wounded who had passed through the place during the previous three weeks, the latter alone having averaged over 700 a day.

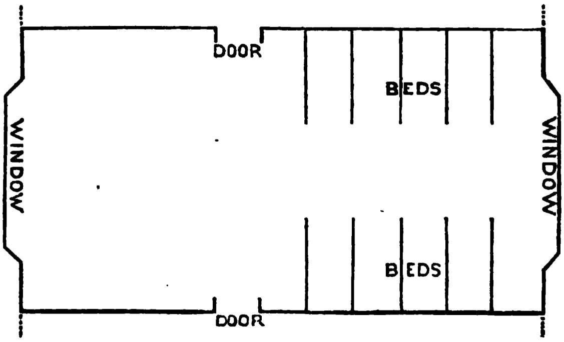
A ride of eight miles next morning, through a very beautiful country in the heart of the forest of Ardennes, brought us to the descent towards Sedan; and in the villages for the last two miles we noticed numerous red-cross flags flying from the churches and most of the large buildings—sure evidence of suffering within. The marks of fighting along this part of the road were painfully evident; and the numerous graves on each side told their own sad tale. On one field the surface was literally covered with loose papers—the contents of the soldiers' pockets; and this we found always the case where the engagement had been severe. It is said that the men, in anticipating a desperate struggle, invariably empty out all their papers, so that they may have a chance of being picked up. Knapsacks, helmets, straps, and broken weapons of all kinds were almost as numerous as the pieces of paper, and in some places literally covered the ground in heaps.

After the battle of Sedan no less than 14,000 French wounded were brought into the town; and although many of these had at the time of our visit been sent away into Germany, the numerous cross flags flying throughout the town told of many still there.

We may remark here that the plan of the Prussians has been, throughout this war, to send away as many of the wounded as possible at once, and to keep none near the battle-fields who are at all able to be moved. The horrible stench we encountered in some parts of the town was sufficient to suggest the necessity of removal at the earliest possible period. We ventured to throw out a hint to some of the authorities that one very efficient means of lessening this smell would be to have numerous peat fires burning over the district—a very simple plan, which might easily be adopted.

The Anglo-American Ambulance, by far the largest in Sedan, is situated at the Caserne d'Asfeld, now converted from barracks into a hospital. It is situated on high ground at the west extremity of the town, and facing some slopes upon which the Prussian batteries had been placed. On each side is the citadel, and the ramparts rise up behind the barrack square. The building was appropriated on the 31st of August, while the fighting was going on, and the wounded began to arrive at once. The next day the building was full to overflowing, not less than 600 being sent in, so that many had to be placed in tents arranged round the building. We were told that many of the wounded brought in had been lying on the field for four or five days, and in many instances had to remain untended for two days in the tents. There were sixteen surgeons, Dr. Mac Cormac and Dr. Marion Sims being at the head. Dr. Mac Cormac here, and Dr. Frank at Balan, are said to have performed all the operations; and if this was the case, it is easy to understand how some of the poor fellows may have lain two days or more before being operated upon. A striking commentary on this circumstance is afforded by the fact, that in proportion to the length of time which elapsed from the receipt of injury to the time of operation were the chances of the patient's recovery. Of those whose injuries dated back a week scarcely one recovered.

The hospital contained 384 beds, arranged in a series of long rooms, one leading into the other, about 30 feet by 50, and having a window at each end; the iron beds being in regular rows, 20 in each ward, thus—



The only furniture consisted of the beds, chairs, and a table in each room, with a screen near some of the doors. The operating room was the second from the entrance. The windows, which were of large size, had been kept open night and day, during all kinds of weather, from the first—the wind blowing through the ward. To this circumstance, along with the free use of carbolic acid, Drs. Sims and Mac Cormac attribute their success. There had been in this hospital no epidemic, no erysipelas, no hospital gangrene, no typhus. We noticed, however, more than one case of clear pyæmia at our visit. There were about 100 cases in the building, all the others having been removed. Of the latter, Dr. Woodham Webb took charge of 40, who were placed in a handsome, well-furnished chateau near Balan; and during the first week after removal 11 cases of fever broke out. The rooms are said to have been close, owing in some measure to their being fully furnished; but so far the rate of mortality was unknown. Meanwhile no case had occurred among the number of those left in the caserne.

There is no doubt that the plan of free ventilation, admirably as it answers in warding off so-called hospital diseases, has this drawback: it has to answer for many cases of pneumonia and other chest mischief which would not otherwise have occurred. It is possible that deaths from this cause might have been prevented if there had been surgeons in sufficient numbers and of sufficient experience to watch these cases, to detect any premonitory signs of chest affection, and then in such a case to have the patient at once removed to a somewhat less airy ward set apart for the purpose.

Conservative surgery had been attempted to a large extent, but the results were not so satisfactory as might have been anticipated in the opinion of Dr. Mac Cormac. Most of the wounds we saw were those produced by shell or the mitrailleuse bullet—the former causing extensive flesh wounds, the latter smashing the bone very much. The needle-gun and the Chassepôt bullets were both said to cause much crushing of bone—necessitating, as a rule, primary amputation. In every case in which a bullet was found to have entered the bone amputation was resorted to. Resection cases were plentiful, and had in many instances turned out well. It must be remembered that we saw what may be termed the intermediate cases only: those in which the injury had been unusually severe or slight had gone—too many, alas! not far, but beyond human observation, as a small well-filled burial-ground hard by testified. All the slighter cases, including most of the injuries about the head and upper extremities, had been removed to healthier spots; and this may explain some statements which have appeared in the papers to the effect that a large proportion of soldiers were wounded in the lower extremities. Probably these alone came under the notice of the writer, as they were naturally enough kept longest in hospital.

Among many cases of interest, we saw one in which excision of both elbow and shoulder joint had been performed on the same arm; and the patient (a Frenchman) had also a very extensive lacerated face-wound. He was doing well twenty-three days after receipt of injuries.

Another man had a large lacerated wound of the thigh caused by shell, with a bullet-wound through both legs just above the ankle. This patient had tetanus early, which was readily and completely controlled by repeated doses of hydrate of chloral. He was suffering when we saw him from undoubted pyæmia, so that the case looked very unpromising.

We were told of one case in which a ball had struck a man on the front of the thigh, driving a piece of his trowsers with his watch deep into the muscles.* This was with some difficulty extracted, and the watch, though completey smashed, was found entire. The man did not long survive.

In every instance where it was at all practicable the bullets were extracted at once; and we were assured that in only three or four cases had it proved impossible to succeed in doing it. This forms a contrast to the plan pursued in the Dutch ambulances, of which we shall have something to say presently. The Dutch surgeons only extract when the operation can be readily performed.

Chloroform was given in all the operations of importance at the Anglo-American hospital. This was also the case at the French ambulance at Sedan.

The mode of dressing wounds and stumps was to use at first Lister's plaster, or simple wet lint; then as a subsequent dressing, after washing out the wound with lotion of carbolic acid of variable strength, according to the nature of the case, to place over it a piece of wetted lint, and on that some oakum. At first ordinary water-dressing, with lint and oil-silk or gutta-percha, or a simple poultice was used: but the stench became intolerable. Under the use of oakum the wounds progressed more favorably, and the atmosphere of the ward was greatly improved. In a case of compound fracture of the thigh, *two* long side splints were employed with good effect, enabling the limb to be more readily moved without pain.

The diet was liberal in the extreme, meat being given twice a day in good quantity, soup also twice, and coffee and stimulants freely. Smoking was in this, as in all the other ambulances we saw, not only permitted, but encouraged. From the eager desire the poor fellows so uniformly manifested for tobacco, we could come to no other conclusion than this: that it has an undoubted power in soothing the nervous system, and in this way is of invaluable service after the excitement of a battle, and perhaps even more so in those cases where defeat has rendered the reaction more intense—as in the case of the French in this particular instance.

During the first three days after the battle of the 31st of August food was very scarce; and the medical men, like the patients, had to be content with bread and water, with some little wine. This, in the face of the work to be done, must have been trying enough. But now there is abundance, we may indeed say a redundance, of everything, medical help included.

At the Sedan French Ambulance, situated in what had been a large cloth warehouse, there had been three cases of primary amputation at the hip-joint; one of which was doing well twenty-four days after injury. One officer, who had both legs and both arms amputated at this hospital, was making a good recovery. A cavalry officer, he was riding when a ball struck both his legs, passing through and killing his horse; and a second bullet went through both his arms. The amputations were said to have been performed in spite of the patient's earnest entreaties to be left to die.

The Swiss Ambulance in Sedan had been a cotton mill, of which the three upper stories were occupied, the ground-floor being used for stores, &c. The windows were so numerous that there was almost one to each bed. The rooms were low, but very freely ventilated by means of the windows and the cracks in the floors. Free living, rest, and carbolic acid were the principal means employed, and with great success. Of thirty-five to forty cases of amputation, only one died. Of the cases of resection and compound fracture, none succumbed who outlived the first few days. Many were brought in dying, some even dead.

We must not quit the subject of Sedan without noticing the very unsavory state of the river Meuse, in which large numbers of horses and men were drowned, and which must surely ere long, as it has, indeed, to some extent already, give rise to grave results among the population.

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* A part of this watch was exhibited at the last meeting of the Pathological Society.

One word as to Bazeilles—that village of the dead, as it might well be called. Once a flourishing suburb of Sedan, with a population of about 3000, it is now as complete a ruin as the mind can possibly conceive; and the wreck of once charming villas and lively streets has become, it is to be feared, a vast mausoleum. The ambulances under the care of Dr. Frank and Dr. Woodham Webb are situated near to this place, but we had not an opportunity of seeing them. The latter is at Balan, and we have already alluded to the unfavorable condition of its inmates in speaking of the patients removed from Sedan. The history of Bazeilles and Balan alone would fill a volume; but we must pass on to our next hospital visitation.

Leaving Sedan by way of the French towns of Mezières and Givet, we made our way by a circuitous route to Saarbruck. Seeing in these towns a large number of French soldiers, and having previously observed many Belgian ones, we were enabled to compare them with the Prussian, of whom we saw large numbers. The superior physique of the Prussians is very marked, and their mental condition is quite as much superior as their bodily is to that of the French and Belgians. We found the Prussians, officers and men, very intelligent, courteous, and well informed. Many with whom we spoke attributed their success to their superior education and their better artillery. How far moral courage may also have helped them we have no means of knowing, but there can be little doubt that it has been an important element of success.

On our way we passed Arlon, the depôt of the National Society, which has proved a most inconvenient station for the purpose, and has sufficiently demonstrated by this fact the absolute necessity of having everything at hand and well organised for all field hospital work.

At Saarbruck we were first struck with the extent and completeness of the provision made for the conveyance of the wounded. At the station were many waiting to be sent off, those who were able being seated in the railway carriages; others placed in hammocks hung by means of india-rubber fastened on the sides; and their comfort appeared to be cared for as much as was possible under such circumstances. It was an extraordinary sight to see such scores of stretchers, of all possible shapes, lying about in heaps; long wooden tents outside the station, as well as an enormous extemporised waiting-room in the building, for the soldiers to wait and to feed in. The evidences of dysentery among the railway travellers were repulsively manifest; and we cannot imagine why the simple plan suggested by Captain Brackenbury, of having long trenches at the stations, with a supply of earth, for the use of the men, has not yet been adopted.

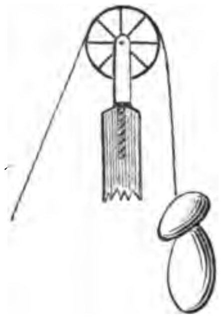
The Prussian Ambulance, at the Casino, a handsome stone building near the river, with beautiful gardens at the back, and a most luxuriously decorated suite of rooms within, formed such a charming retreat after the turmoil of battle as must surely have conduced, if anything could, to alleviate the depression of its inmates. The large concert room, devoted to the officers, is very high, with large glass doors and windows, constantly open, and there was an airiness about it which is unhappily most unusual. Everything was very clean; the patients were abundantly supplied, even to luxuries. We were told the cases had done very well. One French officer we saw had a gunshot wound of the leg, the ball having entered at the groin and passed out below the knee; doing well. There was a case of the fever which has prevailed so much, and which the Germans and Dutch term abdominal typhoid. The patient had a shell wound of the leg; dry tongue and lips; occasional delirium; *no rash;* soft, quick pulse; flushed face; hot, dry skin; and tendency to diarrhœa. A Prussian officer, wounded by a chassepôt bullet in the front of the thigh, had not much pain in the wound, but horrible suffering in the foot. Worn down by pain, he had caught cold, and was now suffering from lung mischief to a much greater degree than the poor fellow would admit.

The Civil Hospital at Saarbruck we found a commodious building, with large entrance-hall; but the wards opened into a corridor, and had therefore windows on one side only. The wards were of moderate size, each one containing from six to a dozen patients, of whom the great majority were military cases. By the side of every bed was a closed locker, with a drawer; and standing on each one was a bottle of water and a glass. Ventilation only by windows and doors. Bedsteads of wood; floors of polished oak. The beds had springs, with wool mattresses.

We saw in one of the wards an admirable contrivance for a lifting bed. The ordinary bedstead stands within the lift, which is merely a framework. The raising is effected by means of a handle attached to a winding iron rod at the head and foot; over each rod passes a band of webbing, attached to the framework below, which lifts it to any required height. A series of screws at the sides tighten the cross-bands which form the floor of the lift, and these can be placed at any distance, or removed for convenience of dressing, &c. The case we saw was one of gunshot of the thigh, with anterior wound of entrance and a posterior wound of exit. The thigh was bound up in cardboard splints, the posterior wound being left open. The patient raised, the wound was readily dressed, without the slightest movement. It was done in this way: first very freely syringed out with dilute Condy's fluid by means of a very simple "irrigateur," and then covered over with simple charpie and lint. The dressing was changed twice a day.

A case of resection of tibia for shell wound was doing very well, placed in an open wire-work splint shaped like Butcher's, but sufficiently large to admit a water-pillow within it as a pad, and a very excellent and cleanly pad it was. The whole was steadied by means of sand-bags, and the patient said he was quite comfortable. Everything was very clean, and the ward arrangements were very complete.

The Swiss Ambulance was situated at some barracks on the hill towards Spicheren. A large room, containing about thirty beds, with opposite windows and three doors, formed the chief ward. The same general plan of treatment was adopted as elsewhere, much being left to the *vis medicatrix naturæ.* Simple charpie, moistened with warm decoctions of chamomile or poppy, along with free cleansing of the wounds with some disinfecting fluid, was the ordinary dressing. There had been only one case of amputation, in upper third of the thigh, and he was recovering. We saw a compound fracture of the thigh, in which there was quite a small anterior entrance-wound, with a large jagged posterior one of egress, put up in a long plaster-of-Paris splint, reaching from the ilium to the toes, with windows for dressing the wounds. Another compound fractured thigh was being treated by the pulley, which was ingeniously screwed into the foot-board of the bed, as shown in the accompanying engraving; much too heavy a weight being attached, however, which we ventured to suggest would answer its purpose more easily and quite as effectually if diminished by about two-thirds. We noticed a man dying from the so-called typhus, which was at the time making sad havoc in the district. He was quite prostrate, with quick, weak pulse, sallow countenance, skin moderately but not excessively hot to the touch; tongue dry and coated, but no brown fur upon it; no spots anywhere; no tympanitis; no purging. This case differed somewhat from the one already mentioned, but this was probably owing to the different stages at which we observed the disease. The cases of fever and dysentery together were being brought into Saarbruck from the Metz army at the rate of about forty a day; the mortality of the latter, we were informed, did not exceed 5 per cent.



We were much interested with the Dutch Ambulance, and had the advantage of being shown over it by a most courteous and intelligent volunteer surgeon, Dr. Lehmann. The Dutch had, immediately after the battle of Spicheren, established their ambulance hospital in the gymnasium and riding school. This was a large one-roomed building, 80 or 90 feet by 60 wide, and with a very high open roof. The windows opened, and were about 12 ft. from the ground, arranged opposite, and there was a large door at each end of the building. The floor was several inches thick with tan and sawdust. Carbolic acid was used so freely that the surgeons on going to dinner were redolent of it; and at the time we saw the place, more than a fortnight after being cleared, the smell was quite strong. For about five weeks the cases went on very well; at the end of that time a compound fracture went wrong, soon another and another. Then dysentery and pyæmia made their appearance; and it was decided at once to vacate the building. The patients were removed, some into adjoining barracks, others into large tents; but the latter had soon to be relinquished on account of cold. The rooms in these barracks were small, most of them having only four or five beds, and were, perhaps, the worst adapted for the purpose of any we had seen. There were some cases of fever, of similar type to those already mentioned; and they were evidently considered as typhoid, although we came to the conclusion that the continental surgeons seemed, as a rule, not to distinguish as clearly as we do the line between typhus and typhoid. Many cases of dysentery, too, had come in, usually of a severe form, but not very fatal, as we have already mentioned in speaking of the Swiss hospital. The patients suffered much pain, with frequent purging, and almost constant tenesmus; their faces pale and pinched. The greatest relief was afforded by the hypodermic injection of morphia, in doses of one-sixth to one-fourth of a grain; but opium was also freely given. There was a man with a gunshot wound of the shoulder, with one opening in front of the axilla, and four others on the posterior surface; the ball, no doubt, having been split up into fragments, which were still left in. The rule is with the Dutch only to remove the ball when this can be accomplished quite readily. These wounds were dressed with charpie dipped in carbolic-acid lotion, the edges of the wounds being first pencilled over with collodion.

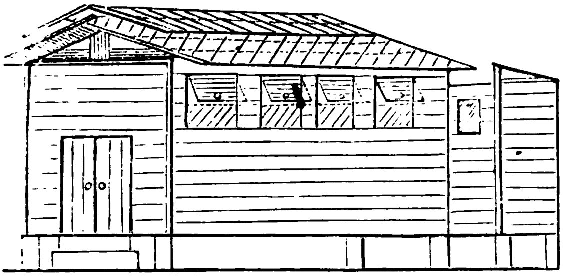
The diet was very liberal; meat in full quantity twice a day; soup twice; one bottle of wine; coffee, tea, and biscuits (like rusks) as much as they liked,—constitute ordinary rate. Extras of all kinds were ordered when necessary.

The iron bedsteads had a hinge near the centre, so as to form a bed-rest; and in this way pillows were to some extent superseded.

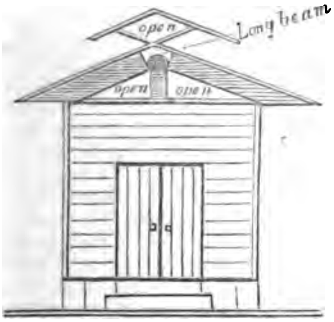
We found the stores of this ambulance most admirably arranged, being entirely under the management of a private Dutch nobleman—and a very pleasant, jolly-looking, and intelligent one withal. Everything was brought from Holland except meat, and bread, and milk. All the different articles were arranged in a room of moderate size outside the barracks, in a most methodical manner, each portion allotted having a plain label. We noticed a large quantity of preserved edibles—such as extract of beef, extract of milk, extract of coffee, herrings, cheese, tea, coffee, sugar, &c., *ad infinitum.* Along with all these we were shown a portable cooking stove, after the pattern of one recommended by Professor Longmore. It is only about eighteen inches square, but in a few minutes will make soup or coffee for fourteen or sixteen men; and a chop or steak can be prepared as quickly. Nowhere else did we see anything approaching the completeness of the arrangement of this store. In this, as in the Prussian hospitals we visited, we noticed the absence of any superfluous attendants, though there was everywhere enough of everything needful; and the patients in every case expressed themselves as being comfortable, and all of them equally well cared for.

The Belgian Ambulance is situated in a garden about a quarter of a mile of the town; and consists of a series of ten wooden huts, five on each side with a street between. They are each about 40 feet long and 25 feet wide, and the space between each is about 30 feet. There were fifteen beds in each. The ground is well drained, and the floor of the huts about two feet from the ground. They are built of rough pine boards, the roof being open along the centre for about six inches on each side of the long beam. The doors are facing the street; the windows about five feet from the ground, four on each side of the ward, opposite each other. The lower part of the windows is of glass, but the upper part consists of a wooden shutter, opening by means of a hinge above, so that it can be closed or opened to any required extent. The air can thus find its way in and out most freely, the planks forming the floor being half an inch apart to facilitate ventilation. The atmosphere of the wards was peculiarly free from the usual hospital smell. At the end of each hut, opening from the side and separated by a corridor in which are two opposite windows, the closets are placed. The receptacles are of wood, and are emptied and washed out with chloride of lime twice a day, earth being used. The huts for stores, kitchens, &c., were more firmly built, and excellently arranged.

The results in this ambulance had been most satisfactory. Of 300 cases admitted, only 12 had died; and of 30 cases of fever, only 4 or 5 had died. There had been some dysentery, but of a mild type. Total cost of the ambulance from the commencement to the 23rd of Sept., 5402 francs (or £216). Of this amount, 3561 f. had been expended in the purchase of food &c. for the patients and staff; 529 f., expense of journey to Saarbruck; 562 f., for drugs; 750 f., indemnity to medical men at 10 f. a day each. Up to the 18th of Sept., 159 sick and wounded had been admitied: died, 7 (typhus, 4); sent out cured, 38. There were 141 Germans and 18 French. Of Germans: 33 wounded, 37 typhoid, 64 dysentery, 2 ophthalmic cases, and 5 other cases. Of French: 17 wounded, 1 typhoid. Staff: 2 directors, 4 physician-surgeons, 1 dispenser and his assistant; 6 male and 6 female nurses, 1 cook and assistant, and 1 laundress.



Side view.



End view.

Belgian Ambulance Huts at Saarbruck. Made of rough logs of pine. Cost about £9 each to build, exclusive of material; and accommodates 15 patients.

We must not leave Saarbruck without expressing our warmest thanks to Dr. Hardwicke, whom we met there, and who was most obliging in putting us in the way of obtaining information. He had been at Saarbruck nearly a month, and his only grievance appeared to be that he really had nothing important to do during the whole of that time. The English work there appears to have been done in a very desultory way, little calculated to bring our country into good repute.

The indomitable determination of the Prussians was nowhere more clearly shown than by a visit to the heights above the town, where the battle of Spicheren took place. The position is so impregnable that we could not help expressing our astonishment at the French ever allowing it to be taken from them.

At Saarbruck, as elsewhere, the number of patients in the ambulances was fast lessening, as those who were sufficiently recovered were being sent away. The places of the wounded were, however, being filled up to some extent by others affected with dysentery and fever, who were daily being brought in from the army before Metz. In the carriage with us when we left Saarbruck were three very interesting cases. One man, a Prussian corporal wounded at Gravelotte, had received a chassepôt bullet below the left orbit, which passed through the palate, and made its exit in the middle of the neck on the opposite side. The wounds were nearly healed. Another, a Prussian private, at Spicheren, was about to fire when a bullet struck him on the upper jaw, carrying away the whole of his upper teeth and the alveolar processes with them. While he was spitting out this unpleasant bolus, a second shot entered his mouth, smashing the left side of the upper jaw, and passing out through the malar bone. The third had a bullet wound of the forearm, and another in the loins, the balls having been in both instances extracted. They were all in capital spirits, and ready enough to keep up a vigorous song—the jaw-maimed man quite as loudly as the rest. These men were going with a number of others to Coblentz. Such instances might be multiplied almost indefinitely, so eccentric and so varied are battle-field injuries.

(*To be continued.*)

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ON
THE PROPAGATION OF SCARLET FEVER.

By Oswald Home Bell, M.D.,

Professor of Medicine, University of St. Andrews.

On the 9th of May, 1869, a young female, in the servants' department of an educational institution in connexion with the University of St. Andrews, complained of slight sore-throat, and exhibited a faint eruption on the throat and wrists, unaccompanied by fever, for which, under the fear that it might be scarlet fever, she was at once sent from the Hall, and isolated in a distant part of the town, where no children were. Desquamation of cuticle followed in due course. The case was one of scarlet fever

On May 14th one of the students in the Hall was seized with smart ulcerated sore-throat, high fever, and marked prostration. He had neither rash nor desquamation. When a child he had had scarlet fever.

On May 15th, a second female in the servants' department was laid down with a smart attack of scarlet fever. She was at once removed, along with her bedding and clothing, to a house in the country, and the room she had been in was subjected at once to thorough fumigation with burning sulphur, &c. The student was isolated, and strict plans of disinfecting, &c., were carried out.

On May 18th another student took sore-throat, and on the 19th had scarlet-fever rash. He was at once isolated in the unoccupied upper flat, a nurse was provided, and all communication with the rest of the house was cut off. Carbolic acid and sulphur fumigation were freely used, and the windows and doors were kept constantly open. Dr. Budd's plan of inunction and disinfection were strictly followed out.

May 22nd.—Another student, who had as a precaution been taken home on the 15th, took scarlet fever in the country.

June 7th.—Another student took scarlet fever. This patient had a week before thoughtlessly broken the quarantine, and entered the room of the last-named patient; but, he declares, "only for two or three minutes." He states that, after entering the room, he was warned of the danger, and immediately left. He had also walked with one of the members of the family who had scarlet fever in town, to be presently alluded to. This student, like the former, was isolated in a separate room on the upper flat, with nurse, &c. Meanwhile, as parents did not wish the remaining students removed, although aware of the epidemic, the Hall was subjected to a process of most thorough and constant ventilation and disinfection. The large and numerous windows were kept constantly open, the upper ventilators acting thoroughly in establishing a free and constant current from the lower galleries to the roof. Sulphur was freely burned, and all the water-closets frequently disinfected.

No fresh case occurred till July 19th, when a fourth student complained of sore-throat, and on examination was found covered with scarlet-fever rash. So little did he feel ill, that he had continued sea-bathing for two days with the rash out on him. With each case that occurred in the Hall it was observed that a case occurred in parts of the town entirely separate from, and in no way apparently connected with, the Hall cases. There was no scarlet fever known to exist at this time, other than the cases stated, either in the town or the neighborhood. The clue to the outbreak was for weeks diligently sought for in vain. The Hall itself was recently built, healthily situated, and well drained. It was a large, roomy, well-aired, well-ventilated building, and it was newly occupied. It stood isolated at the eastern extremity of the town. It was perfectly dry. The students' ages ranged from fifteen and upwards. There was no reason to believe that before coming to the Hall any of them had been exposed to the contagion. The scarlet fever broke out in the servants' department. At the end of July the Hall dispersed. Within ten days or a fortnight after this one of the students, who had joined his family at a watering-place in the South of Scotland, after remaining a few days in Edinburgh, took scarlet fever, which assumed a malignant type. His father, who attended on him, also took it. *Both* died of it within a day or so of each other. Two other members of the family also took the fever. It is noteworthy that the student last attacked at the Hall, and who was detained till desquamation, and therefore source of infection, should have ceased, corresponded with this student who died. In his letter the following statement is said to have been made:—"Even while I write you my hands are skinning." This source of possible infection may have been merely coincident with that of his former connexion with the infected Hall. Still, it is worthy of being noted. The cases at the Hall had all been mild, and so had almost all in the town.

No fresh cases occurred in St. Andrews till August 8th, when a servant in a family visiting St. Andrews, and who had been but a week in town, took scarlet fever.

On August 9th a nurse in another family of visitors, wholly unacquainted and unconnected with the former, took smart scarlet fever. Five other members in the family also took the fever.

On August 17th, having incidently heard that the boy who carried milk to the College Hall, from the country, had remarked to the servants, on hearing them speaking about the sore-throat and fever in the Hall, that "he himself had had sore-throat" and "peeling off of the skin" whilst carrying milk to the Hall, I proceeded to the farm from which the milk-supply was brought, along with the father of one of the young people of the town who had at this time the scarlet fever, and was supplied with milk from the same farm as the Hall. After much examination and cross-questioning I ascertained as follows:—

1. That on May 1st the wife of the farmer who supplied the Hall with Milk had returned from a visit to a town some twenty-five miles off, where, as I afterwards ascertained, two deaths from scarlet fever had occurred about this time. She had one of her children with her. On her way home she complained to a relative of having sore-throat, and on the following day her child sickened, had sore-throat, was covered with a scarlet rash, and in the course of a week had desquamation of the cuticle. No doctor attended. The farm is a small one, and the *mother nursed her child and milked her cows.* The second child took the sore-throat, with fever, rash, and subsequent desquamation, about a week or a fortnight after the first. After a time the milk boy who carried the milk to the town and to the Hall had sore-throat, not sufficient, however, to confine him to bed; and in due time he also had desquamation of cuticle on hands and feet. He continued *all the while* to carry milk to town. The boy on a second examination attempted to deny "having skinned," under the idea that blame attached to him. He said the skin came off his hands and feet; but he said his hands were tender from hoeing in the fields. This of course did not account for his feet "skinning" as well.

2. On making out a list on the spot of the houses in which scarlet fever had showed itself in St. Andrews, and on asking the farmer's wife for a list of the houses which she supplied in town with milk, the lists, with one exception, on each side were the same. The exception on the side of the milk supply had reference to a house where two elderly ladies lived, with no young people near; that on the side of the scarlet fever referred to a mild case of a child in a large family, none of whom took the fever, whilst the case itself was of the mildest description, and not traceable to any contagion.

Milk was supplied to no other house in town, whilst with the one exception named above every house supplied had been attacked with scarlet fever. After the College Hall had broken up, the milk supply thus available had been sent to the houses in which the scarlet fever broke out. (See August 8th and 9th.)

3. A family, one mile off in the country, whose cow had ceased to give milk *in May*, got milk during that month from this farm, and during that time the younger members of the family, three in number, took scarlet fever, although there was none known to be in the neighborhood. The two eldest boys, who carried the milk to their home, did not take the fever, but they had had it some years before.

I shall not occupy further space by dwelling on the different illustrative points brought out in this case, but shall merely state these apparent inferences:—1. That the scarlet fever contagion was carried from the farm to the town and Hall. 2. That it was conveyed in one or more of three ways—(*a*) by the milk, (*b*) by the milk utensils, (*c*) by the boy carrying the milk. It is here noteworthy that the milk boy had no scarlet fever when the first cases occurred in the College Hall and town, and that the two children who carried the milk from the farm to their home in the country, and who had on a former occasion had scarlet fever, did not take it, whilst their younger brothers did take it, there being no known cases of scarlet fever in the neighborhood.

The cases in all, springing apparently from this one source—viz., the infected farm—numbered twenty-six, of whom two died.

In illustration of the many ways in which this fatal and prevalent disease may be spread, and of the urgent necessity of imparting information to the people as precautionary measures, or to facilitate such measures, I may briefly note the following case, which I saw a month or two ago. In a small crowded room I visited a child under sharp scarlet fever. On instituting inquiries with a view to isolating the case, I found as follows. The father had charge of an extensive Society bread-shop; the mother was a washer-woman, taking clothes to her house to wash; the eldest girl attended throughout the day the children of a lady's family, and came home to sleep at night; the other children attended, some an infant school, some a large mixed school, where hundreds of other children met. The youngest played with young children in a house on the opposite side of the passage. By disinfection and isolation the scarlet fever only spread to the family on the other side of the passage last named. Here were no less than six different channels for the extensive propagation of contagion from one powerful centre.

In illustration of the preventable deaths which, on a large scale, are sacrificed to this disease, let me shortly mention the following, occurring in one family circle during last winter. A grandfather received his son home from a town infected with scarlet fever. The son had sharp fever, severe ulcerated sore-throat, with much congestion, and a red rash only over the palate. A brother and his children visited him. The father had years ago lost two sons from scarlet fever. The present case was a doubtful one of scarlet fever without rash. There was none at this time in St. Andrews. The brother's children took scarlet fever of which *one died*. Isolation and a strict plan of disinfection were urged from the commencement, but were not attended to. A sister's family, living at a distant part of the town, took the fever, and *two* out of the three *died*. A brother's family, still in an entirely separate part of the town, also took the fever in about a fortnight, and out of this (also a family of three) *two died*. Here in one small family-circle *five lives* are lost, apparently entirely through ignorance and neglect of sanitary precautions on the part of the friends. The same sacrifice, on an immense scale, is known to be going on all over the country—with what practical result as regards preventative measures?

St. Andrews, Oct. 1870.

ON THE FORCE OF THE HUMAN HEART.

By Andrew Buchanan, M.D.,

Professor of Physiology in the University of Glasgow.

As the force of the human heart is a subject that can never lose its interests to Physiologists, I desire to submit the following observations upon it, suggested by an estimate of it recently made by the Rev. Dr. Haughton, of which an account is contained in the *Dublin Quarterly Journal of Medical Science*, vol. xlix., p. 47, under the title "On the Mechanical Work done by the Human Heart." I merely premise that I wish to speak of the reverend gentleman with the most perfect respect, and that I am not the less indebted to him for his testimony on behalf of my opinions that it has been unintentionally and, indeed, unconsciously given.

I shall first endeavor to show that the solution of the problem of the heart's action proposed by Dr. Haughton is, so far as it goes, essentially the same as that which I laid before the profession nearly two years ago. I shall next endeavor to show that Dr. Haughton's solution, although capable of determining the mechanical equivalent of the work done by the heart, cannot be employed to determine more minutely the work which the heart actually performs, and gives us erroneous ideas when we attempt so to employ it.

Let it, in the first instance, be taken for granted that there is no error in the data on which our respective computations are based, so that we may have nothing to consider but the use which is made of them.

The three elements which Dr. Haughton assumes as the groundwork of his computation are, that the heart contracts 75 times in a minute; that at each contraction the left ventricle of the heart discharges three ounces of blood; and that the hæmastatic column in man stands at a height of 9·923 feet. He now multiplies the quantity of blood discharged at each contraction by the height of the hæmastatic column ($3 \times 9{\cdot}923 = 29{\cdot}769$), and regards the product as indicating the number of ounces that are raised one foot by each contraction of the heart. He again multiplies the product by the number of contractions of the heart in 24 hours, and so he obtains 89·706 foot tons as the measure of the daily work done by the left ventricle of the heart.

In addition to Dr. Haughton's three elements, I avail myself of a fourth—viz., the area of the ventricular orifice of the aorta, which I estimate with Kiel as equal to ·4187 of a square inch, and which I regard as an element of the very highest importance in the solution of the problem of the heart's action, and the more so that it can be determined with ease, and is therefore more worthy of reliance than are some of the other elements.

Supposing, then, that we add the element just mentioned to Dr. Haughton's other three, the following is the mode in which I employ these elements to determine the force of the heart. The weight of a cylinder of blood 9·923 feet in height, and having a base of ·4187 of an inch, is 30·20838 ounces. Three ounces of blood, which the heart discharges at each contraction, fill of such a cylinder 11·8245 inches, or ·985375 of a foot. Now, multiplying together the two numbers thus found, I obtain a product of 29·769, the identical result obtained by Dr. Haughton—

$$30{\cdot}208 \times {\cdot}985375 = 3 \times 9{\cdot}923 = 29{\cdot}769.$$

I had therefore reason in saying that Dr. Haughton's computation is essentially the same as mine, seeing that their results are identical.

The same coincidence holds with respect to my own computation, and comes out still more strikingly owing to the greater simplicity of the numbers. I assume that the heart beats 72 times in a minute, that it discharges two ounces of blood at each contraction, and that the height of the hæmastatic column in man is 88 inches. Now the weight of a cylinder of blood 88 inches in height, and having a basis of ·4187 of a square inch, is 22 ounces. Further, two ounces of blood, the quantity discharged at each contraction, fill exactly, of such a cylinder, 8 inches. Dr. Haughton's computation is 2×88, and that is exactly equivalent to my computation, 22×8; the common product being 176, which denotes the number of ounces which are lifted one inch at each contraction, and by dividing 176 by 12 we obtain the number of ounces that are lifted one foot—viz., 14·66. Dr. Haughton's number for each contraction is more than double, 29·769; but, in addition, he makes the heart beat 75 times in a minute, instead of 72 times, so that his total estimate of the day's work is to mine in the proportion of 30·774 to 14·66. But this difference does not depend on any difference in our modes of computation, which lead exactly to the same result, but merely on the different magnitudes assumed of the elements which form the base of the computations.

Neither are these accidental coincidences; for it is easy to show that the numbers obtained by Dr. Haughton's method are necessarily the same as those obtained by mine. For let W denote the weight of a cylinder of blood having a base of ·4187 of an inch, and a height (H) equal to that of the hæmastatic column, and let h be the portion of that cylinder equal in volume to the blood emitted from the heart at each contraction, while w denotes the weight of the same quantity of blood. Then, as the weights of any two portions of the same liquid are as their volumes, we have—

$$w : W :: h : H; \text{ and consequently}$$
$$wH = Wh$$

Now Dr. Haughton's method consists in calculating wH, and mine consists in calculating Wh quantities, which are necessarily equal, so that the two methods must in all cases lead to the same result.

I have thus shown that the solution of the problem of the heart's action proposed by Dr. Haughton is, so far as it goes, essentially and necessarily the same as that which I laid before the profession nearly two years ago, and I now proceed to show that Dr. Haughton's solution, although capable of determining accurately the mechanical equivalent of the work done by the heart, cannot be employed to determine more minutely the work which the heart actually performs, and misleads us when we attempt so to employ it.

To determine the work actually performed by the heart is a problem quite different from that of determining the mechanical equivalent of the work done. The very same effective force is required to raise one pound to a height of ten feet, as to raise ten pounds to a height of one foot, or five pounds to a height of two feet, or two pounds to a height of five feet. In all of these cases, and others innumerable if we descend to fractional numbers, the mechanical equivalent is the same, or ten-foot pounds; but the operations themselves are very different, and with respect to any organ acting in the living body, or any inanimate machine, we would not rest satisfied till we knew which was the operation it actually performed. Now it is just so with respect to the heart. There are questions in physiology, as Dr. Haughton has shown, to answer which the mechanical equivalent of the heart's action, or the total amount of its effective force, is all that we require to know. But there are other and more important questions for which that meagre knowledge is insufficient. The physiologist wishes to know, not only the amount of the effective force of the heart, but also in what precise way or ways that force is expended within the body. What is wanted will be better understood when I say that the effective force of the heart communicates to the blood its momentum, and that the momentum of the blood is expressed by ($q \times v$) the mass of blood which is set in motion multiplied by the velocity with which it moves. Now we should at once attain our end if we could determine the respective values of q and v. But it is just because we cannot do so directly, that we are obliged to have recourse to empirical formulæ. But such formulæ are only valuable as they agree, term to term, with the rational formula ($q \times v$) Now Dr. Haughton's formula ($w \times H$) and mine ($W \times h$) cannot both agree, seeing that the terms are inverted—that which expresses the mass moved in the one, expressing the velocity in the other. We must judge, therefore, which of these formulæ gives the most probable view of the moving mass and velocity of the blood. Taking Dr. Haughton's data, and viewing them in the light of his own formula (wH), we have 3 ounces of blood moved over 9·923 feet at each beat of the heart, or with an initial velocity of very nearly 750 feet per minute; which is manifestly a *reductio ad absurdum*. But if to the same data we apply the formula (Wh), we invert the ratio of the mass to the velocity, and find 30·2 ounces of blood moving over ·985 of a foot at each beat of the heart, or with an initial velocity of 73·875 feet per minute; which, though a high rate, is no longer so extravagant as to be incredible.

In conclusion I may be allowed to say that I am still inclined to think favorably of my own more moderate estimate that the heart at each contraction exerts a force which would be in equilibrium if counterbalanced by a weight of 22 ounces × 129·28 grains. The mode in which this force is expended is most easily explained by supposing that we have a tube 88 inches in height and ·4187 of an inch in base, that this tube is exactly filled with blood, and that at each contraction of the heart two additional ounces are forced into it at the lower end, lifting the whole column over a space of 8 inches, and causing an equal overflow at the top. This represents accurately the labor of the human heart, and supplies us with two numbers to express it: the one, 22 ounces, being the weight of the column of blood; and the other, 8 inches, the space over which the column is lifted. The former of these numbers denotes the resistance that has to be overcome in forcing two ounces of blood into the aorta, and pushing before it the whole mass of blood in the bloodvessels; the latter, again, denotes the velocity with which the blood issues from the heart. Multiplying these two numbers together, we obtain the momentum which the heart communicates to the blood—22 ounces moving with a velocity of 8 inches during the period of a pulsation, or of 10 inches per second, or 50 feet per minute. This is equivalent to 176 ounces (22 × 8) lifted one inch, or 14·66 ounces lifted one foot, during the period of a pulsation; or of 65·9 foot-pounds in a minute, or 42·3 foot-tons in twenty-four hours.

P.S.—The facility with which the force of the heart, in whatever aspect we choose to contemplate it, can be obtained from the weights and volumes of the columns of blood at *A*, *B*, *C*, which have severally a basis of ·4187 of an inch, seems to me to show well the importance of assuming the area of the ventricular orifice of the aorta as an element in computing the force of the heart.

A is the calculated hæmastatical column.
B is the observed hæmastatical column.
C is a column equal in volume to the capacity of the left ventricle of the heart.

	Weight in oz. av.		Volume, as height of column, in inches.
A =	22·301	......	89·165797
B =	22·	......	88·
C =	2·	......	8·

Force of Heart.

1. Statical equivalent = *A* = 22·ounces × 129·28 grains.
2. Dynamical equivalent = *B* × *C*, the weight of the one into the volume of the other.
   $\left.\begin{matrix} 22 \times 8\cdot \\ 2 \times 88\cdot \end{matrix}\right\} = 176$ inch ounces = 14⅔ foot ounces.
3. Momentum of blood as emitted from heart, = weight *B* × volume *C* = 22 ounces moved over a space of 8 inches at each pulsation, or with a velocity of 10 inches per second.

Glasgow, Oct. 1870.

ON A CASE OF

RUPTURE OF THE UTERUS; GASTROTOMY; RECOVERY OF MOTHER.

By John H. Tylecote, M.D., &c.

Cases of rupture of the uterus, are, hardly, of such rare occurrence in obstetric practice, and the recoveries from this truly formidable lesion are so deplorably infrequent, particularly when, from the escape of the child into the abdominal cavity, it has been deemed necessary to perform gastrotomy, that I may consider myself singularly fortunate in being able to place on record a case in which the life of the mother was saved under such unfavorable circumstances.

For the following history of the case previously to my being called in I am indebted to Mr. Young, assistant to Mr. Hopkins, of Stone, in whose practice the case occurred.

"Esther N——, aged thirty, wife of a poor Irishman. In labour of her seventh child. Has one child living; one died in infancy, and four have been still-born. When first seen, on June 20th, at 11 P.M., examination discovered the os uteri dilated to about the size of a shilling, the presentation normal, and the pains occurring every ten minutes. The membranes ruptured accidentally when making the examination. As there was nothing to be done, I left, and returned about 1.30 A.M. of the 21st. The os was then dilated to the extent of a crown-piece, but the pains were still rather weak. At this time everything seemed to be going on favorably. I again saw her at 2.30 A.M.; she was then kneeling on the bed, and all pain had ceased. The nurse in attendance informed me that about a quarter of an hour before my entrance she felt a rather acute pain, and jumped directly to her knees. From that moment the natural pains ceased. I now found the presenting part of the child had receded beyond reach of the finger, and, suspecting that rupture of the uterus had occurred, I at once sent for Mr. Hopkins, who arrived at 3.30. That gentleman, having satisfied himself as to the serious nature of the case, called in Dr. Fernie, who confirmed the opinion that the uterus was not only ruptured, but that the child had escaped into the abdominal cavity. Dr. J. H. Tylecote was then sent for."

On June 21st, at 8.30 A.M., I saw the patient, in consultation with Mr. Hopkins and Dr. Fernie. At this time she seemed much distressed; her countenance was anxious; there had been vomiting, and she complained much of epigastric pain and difficulty of breathing, the latter being aggravated on placing the head low. The pulse was 140, weak, but distinctly countable. The abdomen was much distended, very tense, and tender on pressure, particularly over the right side. The child could be plainly traced through the abdominal parietes, with the head lying above the pubes, the body and legs being directed towards the left side.

As the bladder had not been relieved for some time, I introduced a catheter and drew off about half a pint of clear urine. On examination per vagina, I noticed a bloody discharge. The presentation could not be made out with the finger. When the hand was fully introduced, it passed into the cavity of the uterus with some difficulty, in consequence of the pressure of the child lying anteriorly to it. The first thing I came upon in the uterus was the placenta, which was attached to the posterior part of the body of the uterus, near the fundus; and above and behind this I felt a hand—the right—as far as the wrist. The remainder of the child was external to the uterus, and could be distinctly felt, through its walls, lying anteriorly and rather to the left side. I now withdrew my hand from the uterus, and explored anteriorly, to satisfy myself as to the position of the child. On again examining the uterus, I found the os contracted, so as to tightly embrace the finger, and the hand could be easily swept round the outer surface of the posterior part of the uterus, which was by this time firmly contracted to the size of a child's head. The ability to do this may perhaps be attributed to the downward displacement of the uterus by the pressure of the child from above.

After consulting together as to what was desirable to be done under these grave circumstances, it was decided that gastrotomy should be had recourse to as the only means likely to afford the poor woman a reasonable chance of recovery. This operation I accordingly at once performed, with the assistance of Dr. Fernie and Mr. Young, Mr. Hopkins undertaking to administer the chloroform. The weather at the time was very hot, the thermometer standing at 70° in the shade; the bedroom very small, the light bad, and the bed so low as to necessitate our kneeling down during the operation. The patient was placed on her back, with her shoulders somewhat raised, and her knees separated. When she was fully under the influence of chloroform I made an incision, with a scalpel, through the integument and subjacent adipose tissue, about seven inches in length, a little to the left of the linea alba, and extending from the level of the umbilicus down to the pubes. On opening the abdominal cavity at the upper extremity of the wound a discharge of blood took place, whereupon I introduced my finger, and upon it extended the opening with a probe-pointed bistoury down to the pubes. The head of the child immediately presented itself, and was quickly expelled. At the same moment a bluish-white, glistening, semi-transparent substance, having somewhat the character of intestine, appeared in each side of the wound. This, to our relief, was soon discovered to be the thickened and œdematous funis coiled round the child's neck. I at once drew it down over the head, and, in doing so, noticed that it had ceased to pulsate. Very slight traction was required to bring away the child; and by simply putting the funis on the stretch the placenta could be felt by the finger inserted in the lower edge of the wound, and was readily extracted. Its extraction was followed by a free discharge of clots and fluid blood. There was considerable protrusion of omentum, but the intestines were never seen throughout the whole proceedings. The wound having been quite cleared of clots, and the protruded omentum carefully returned, seven waxed silk sutures were inserted through the whole thickness of the abdominal walls, a pad of lint was applied supported by broad strips of adhesive plaster, and a firm binder over all. The patient recovered consciousness in time to feel the introduction of the last stitch, and expressed herself as feeling more comportable. The child, a well developed male, was still-born. Forty drops of Battley's sedative solution to be given immediately, and twenty drops every two hours afterwards; catheterism, if required; diet to consist of beef-tea and milk, with soda-water and ice.

June 24th.—Found her in a most favorable condition. Countenance cheerful; skin cool; pulse 92, and soft; tongue clean and moist. The bowels have not acted since the operation three days ago. The catheter had to be passed twice only, and she has since micturated freely. Abdomen rather tumid, but neither tympanitic, painful, nor tender on pressure. The lochia, which have hitherto been natural, are to-day scanty. The breasts are full and uncomfortable. The wound to be dressed with carbolic oil, one part to thirty; an enema of warm water if required; the vagina to be washed out with Condy's fluid; the breasts to be drawn twice daily; and the dose of Battley to be diminished.

I have since been informed by Mr. Hopkins that the patient recovered without a single interruption; and the abdominal wound healed by the first intention, without any appearance of suppuration except around some of the sutures, which were removed on July 4th—i. e., thirteen days after the operation. A vaginal examination, six weeks after the operation, failed to detect any traces of laceration of the vagina or adjacent parts of the uterus.

The favorable issue of the foregoing case is a good example of the dangerous lesions from which patients do now and then most unexpectedly recover. It is encouraging also to those who might be deterred from performing gastrotomy under similar circumstances, by the generally fatal result of this operation.

The exact situation and extent of the rupture it was difficult to make out accurately, but my opinion is that it occurred near the fundus, and rather to the right side—that being the situation in which I felt the hand. That the extent was considerable was sufficiently proved by the escape of the child and placenta through the rent in the uterine wall.

The rupture was caused neither by a disproportion between the pelvis and the child, as the former was capacious and the latter normally developed; nor by an unnatural presentation, as that was distinctly made out to be natural at the first and second visit. It is more probable that degeneration of the uterine tissue was the real cause of the accident; and the origin of this morbid change may, I think, be traced to a difficult labour which occurred about a year before, and of which the following is a brief account:—

On July 12th, 1869, I was called in by Mr. Hopkins and Dr. Fernie, when I found that the membranes had been ruptured since the day before, or for about fifteen hours. The arm, which was much swollen, was protruding, and the head partially occupied the cavity of the pelvis. The vagina was pungently hot and dry; the countenance anxious; the pulse very rapid and feeble, and there were vomiting and restlessness with jactitation. I passed a male elastic catheter, but only a small quantity of bloody urine came away. She was put under chloroform, and I ultimately succeeded in turning the child, although the uterus was so tightly contracted round its body that the introduction of the hand was exceeding difficult. The abdomen was very tumid and tympanitic, and very nearly as large after as before delivery. The patient, however, made a good recovery.

A consideration of the above facts will naturally lead to the conclusion that the injuries which the uterus sustained during the previous labour were followed by degeneration of its structure, which rendered it liable to give way when called into action in a subsequent labour.

Sandon, Stone, Staffordshire, Sept. 1870.

ON THE

SURGICAL PRACTICE OF THE WAR.

By William Mac Cormac, F.R.C.S.,

Late Surgeon-in-Chief, Anglo-American Ambulance at Sedan.

Perhaps a few general remarks on the surgical practice of the war may not at the present time be uninteresting. Unfortunately I can only comment upon what I have myself seen and done. My own work engrossed my entire time, and I regret extremely I have but little experience of what was accomplished by other surgeons, of whom there were many, and most distinguished, around me. At Sedan, where I arrived shortly before the battle, we had under our care both French and German wounded, but fewer of the latter than of the former.

The majority of the wounds were shell wounds, as we were placed in that portion of the lines most exposed to the artillery fire. However, in a considerable proportion of our patients, the zundnädelgewehr had wrought its frightful havoc, and we had a good many chassepôt wounds as well.

So far as I am able to judge, the egg-shaped bullet of the Prussian infantry inflicts the more extensive injury on both the bone and soft parts. It is considerably heavier than the French cylindro-conical ball, weighing 500 grains, as compared with 384 grains, the weight of the French projectile. It seems to pulverise the bone where it strikes it, and to splinter it extensively as well. The external wound bears but little proportion in its extent to the nature and severity of the deeper lesion when the bone is injured.

Excluding wounds of the head and trunk, flesh wounds of the limbs without fracture of the bone are quite twice as frequent as wounds accompanied by fracture. Indeed, as has been over and over again observed, it is remarkable how bullets appear to traverse without touching the bone, or other important parts, which would seem directly in their way.

Penetrating wounds of the head and abdomen are, of course, comparatively rare, the unfortunate recipients usually dying upon the field immediately, or soon after, they get them.

We saw very few cases of mitrailleuse wounds. When a soldier is wounded by musket-firing, as a general rule he receives but one bullet, falls, and, if not killed, is carried off to an ambulance. But the unfortunate men exposed to the fire of the mitrailleuse were often hit in half a dozen places at the same moment, by one volley. The mitrailleuse bullet weighs an ounce and three-quarters, and twenty-five are sent on their errand of death in each discharge. The range is about 1400 or 1500 yards, and as the balls do not spread till they have reached a considerable distance, the troops within range are often literally riddled. Between Balon and Bazeilles there were quite a number of Bavarian soldiers lying dead with their limbs almost carried away, in some instances, so terribly were they torn up by mitrailleuse discharges. In many parts of the field I saw men with large portions of the skull blown away—a most ghastly sight; others as instantaneously shot dead through different parts of the trunk.

One remarkable, and, I believe, much disputed fact, I am able to verify from personal observation. I can myself afford no explanation, indeed it is to me inexplicable. The majority of those killed whom I saw upon the field were lying on the back with their arms and legs extended, as if they had died with every muscle relaxed; but there was a certain number, I am sure I saw eight or ten, who were lying with both arms rigidly fixed in a constrained position—such an attitude, in short, as they would have held if they were about to raise their guns to the shoulder to fire. Had the muscles relaxed in these cases, at or after death, the force of gravity must have caused their limbs to fall extended like the rest; but it was not so. This was on September 4th, three clear days after the battle.

With reference to the wounded under our care, although we were placed under exceptionally favorably circumstances for a field ambulance, the results are, and must be, far from being so satisfactory as one could wish.

After the battles at Sedan of the 31st August and the 1st September, our beds, 384 in number, filled as if by magic. All the cases were most severe ones, and it was impossible all at once to overtake the huge press of work suddenly thrust upon u The numbers of cases and operations we had give in the subjoined collective form.

CASERNE D'ASFELD, SEDAN.

Wounded, inscribed and registered, including a few sick	593
Sick and wounded, not registered, but treated in hospital	200
Wounded, dressed and attended to as extra patients, during the battles of the 31st August and 1st September	400
Total	1193

Table of Injuries.

	No. of Cases.		Deaths.
Gunshot wounds of the head, face, and neck	38	......	10
Gunshot wounds, without penetration, of the trunk	29	......	4
Penetrating wounds of chest ...	21	......	10
,, ,, abdomen ...	5	......	5
,, ,, pelvis ...	9	......	4
,, ,, joints ...	35	......	21
Gunshot wounds around joints, close to, but not penetrating, chiefly the knee	25	......	1
Gunshot wounds, causing fracture of the bones of the extremities	91	......	35
Gunshot wounds of the extremities without fracture	136	......	9
Gunshot wounds of the hand and foot	55	......	3
Sprains, burns, contusions, &c. ...	28	......	1

Table of Operations.

	No. of Cases.		Deaths.
Disarticulation of joints, including two hip-joint and three knee-joint amputations	11	......	9
Amputations of limbs, including fourteen thigh, nineteen leg, and two double amputations ...	77	......	30
Resections of joints, including one knee, two shoulder, and nine elbow cases, and a double resection of shoulder and elbow, as well as resections of the long bones	15	......	7
Ligature of the subclavian artery	2	......	2
Ligature of the common carotid artery...	2	......	1
Ligature of the common femoral artery...	1	......	1
Ligature of the dorsalis pedis artery	1	......	0

(All for secondary hæmorrhage.)

No doubt the number of deaths here tabulated is large, but it is by no means excessive. Of one thing I am sure: our ventilation was excellent, and most strictly attended to, and we used carbolic acid very freely. There was thorough cross-ventilation, and the wind blew in at one side of the ward, and out at the other, often so strongly as to make the patients complain.

I ascribe the majority of the deaths to pyæmia. We had no hospital gangrene whatever, or any other evidence of so-called hospitalism. I have noted pyæmia with metastatic abscess in the liver and lungs as the cause of death in thirty-four instances; but I feel confident that I have omitted to registrar many cases where this was the cause. In the large majority of instances in which pyæmia supervened there had either been a gunshot fracture of some of the bones or an amputation. There were, however, several cases of fatal pyæmia occurring after simple flesh wounds. I believe the outbreak of pyæmia amongst us had a close connexion with the influx of very bad cases on the 9th and 12th September, on which dates 195 new patients were sent to us.

Taking ten or twelve days as the mean duration of an attack of acute pyæmia terminating in death, we should expect a large mortality from this cause shortly after the 20th September. I find, on looking over my notes, that 20 of the 34 cases of death from pyæmia occurred between the 19th and 27th of September, and that as many as 11 deaths took place from pyæmia alone on the days of the 21st and 22nd September. This would surely indicate the over-crowding during the week following the 9th September as having a very close relationship with the subsequent outbreak of blood-poisoning.

A glance over the list of operations will show but one case of excision of the knee. It was the only case I was able to select favorable in all respects for this operation, and the patient speedily died. Professor Nussbaum, of Munich, attached in a high position to the German army, has had the hardihood to perform thirty-six times resection of the knee for gunshot wound. Of the thirty-six, thirty-five died, and amputation of the thigh was performed in the thirty-sixth case with a rapidly fatal result. In the Crimean war, and in the American war, the results of excision for gunshot injury of the knee have been alike most unsatisfactory. Once only I performed excision myself, because the case appeared to afford the most favorable prospect of success; but I now question if almost any case, however tempting, would make me perform resection of the knee-joint for gunshot injury in war.

There are twenty-five cases mentioned in the table of wounds *around* joints, chiefly the knee. I was much struck by the number of cases of this kind, which bear a very large proportion to the number of penetrating wounds of the joints. Often have I seen a bullet track go quite half round the knee-joint, without opening the articulation. These cases, I need scarcely add, got well just like simple flesh wounds elsewhere. Possibly this fact may help to account for the prodigious percentage of cures of penetrating wounds of the knee, as much as 50 per cent., which some of the surgeons during the late war in America were fortunate enough to secure.

There are many other points of interest in connexion with the cases which came under my notice, to which I might advert, but, for the present at least, I have sufficiently trespassed upon the pages of The Lancet.

Nov. 1st, 1870.

CARBOLIC ACID AS AN ANTISEPTIC AND DISINFECTANT.

WITH A FEW CASES ILLUSTRATIVE OF ITS BENEFICIAL EFFECTS IN CATARRHAL, ASTHMATIC, AND BRONCHIAL AFFECTIONS.

By Angus Mackintosh, M.D.

(Continued from January number—p. 20.)

Case 4.—Late in the evening of the 10th of January I was requested in great haste to see a man, aged thirty-five years, who had broken his leg while wrestling and fighting in a public-house. On reaching his house, which was only a short distance from where the accident occurred, I found him sitting on a chair, supported by two friends, one on either side, and his head resting on a partition, quite unconscious. I first examined his head, which was in a most frightful state. The scalp was divided in a line from the middle of the forehead to the occiput, and turned down over the right ear; the face and hands, in short everything about him, were covered with blood. I could not discover any fracture of the cranium; and, after cutting the hair and washing the parts, I stitched the edges of the scalp together, and dressed it with cold-water cloths, supported by a bandage. The right leg was bent at right angles, the foot thrown outwards; internal malleolus protruding through the elastic of his boot. Before removing the boot and stocking I could detect a fracture of the fibula above the external malleolus. By a little assistance we got him to bed, undressed him, and cut the boot and stocking so as to get them removed with as little pain and damage as possible. Having done so, I could see, without any manipulation, the complication of circumstances: compound dislocation of the ankle inwards, and compound comminuted fracture of the fibula, about three inches above the external malleolus, with much laceration of integuments. The reduction was not very difficult. By extension and counter-extension, accompanied with a little gentle pressure, I managed to put the ankle in its proper place. The greatest puzzle was, not to replace the bones, but to keep them in position afterwards, owing to the wounds on both sides of the leg. Splints and bandages were out of the question. The means employed, therefore, were sand-bags, paddings, and strips of adhesive plaster, with a few other contrivances, to steady the foot and ankle, and carbolic acid and oil as dressing. I regularly for three weeks visited my patient three times a day, and dressed the wounds myself, being determined to watch more closely, if possible, the effects of the acid in the first stage of reparation. The ankle wound was thoroughly washed and injected with carbolic acid and oil (one to eight), four layers of lint saturated with the lotion applied, and the whole covered with oiled silk. The wound on the outside was similarly dressed, with this exception—that the carbolic-acid paste (one to eight) was used. Consciousness returned; pulse 80; does not complain of pain.

Jan. 11th.—The ankle wound contains several small clots of the original coagulum; scarcely any serum observed; wound surprisingly dry; no appearance of suppuration, pus, or putrefaction. Wound swabbed with the lotion; no clots removed; dressed as before; outside wound not touched; pulse 78; no pain. Allowed a pint of porter daily, with plenty of beef, &c.

12th.—The oiled silk raised so as to allow the lotion to be dropped freely over the dressing without removing it. This was done night and morning. Outside wound not dressed; no pain; pulse 75.

13th.—The outside wound undressed; no fresh extravasation of blood; clots few and small; wound almost dry; no pus; discharge of a serous nature, and amounts only to a few minims; no erysipelas; very little pain; pulse 80; a little feverish; tongue slightly coated. Aperient pill given.

14th.—Ankle wound almost dry; no clots or extravasation of any consequence; dressings very little stained; no constitutional disturbance; pulse 80; appetite good; bowels open. Carbolic acid lotion reapplied.

15th.—Scalp wound healing by the first intention; only cold-water dressing; lotion dropped freely over the ankle wound; dressing not removed; pulse 75; patient's general health excellent.

16th.—Lotion applied freely on ankle wound outside the dressing; no pain; pulse 75; sleeps every night.

17th.—Two small splinters of bone removed from outside wound; no pus, and only a few minims of serum observed; no coagulum of any kind; wound dressed as before; ankle wound looks well; healthy granulation going on; no suppuration or putrefaction; pulse 70; appetite good. Lotion reapplied.

18th.—Pulse 70; no pain; neither wound dressed.

19th.—Stitches removed from scalp; wound healed without suppuration; leg and ankle wounds untouched; pulse regular; doing well.

20th.—Very little discharge of any kind from either wound; patient can sit up in bed with ease and comfort; pulse 70; no pain; sleeps well.

21st.—From this time both wounds healed rapidly, without any suppuration or putrefaction, so that in the course of four months he was out walking on crutches, and in six months working at his trade, and now has to walk many miles during the week, seemingly without much effort.

Remarks.—My object in giving so much attention to this case was not to decide whether carbolic acid was potent enough to destroy, under certain conditions, the spores and germs that may be floating constantly in the atmosphere, the presence of which in contact with living organic substances is believed to favor putrefaction and hasten suppuration, and thus retard and obstruct the process of reparation; of its virtue and efficacy in this respect I have only one opinion—namely, that the discovery and application of it as a curative agent in severe surgical injuries is invaluable and a great triumph in modern surgery. Neither do I wish to peep into the secret of the advanced theory, that living things may and do arise *de novo*. My only desire was to ascertain, if possible, the chemical effects of carbolic acid on extravasated blood in a fresh wound, and if the beneficial effects of it were to be solely attributed to its property of destroying atmospheric germs. I am now pretty fully convinced that its chemico-physiological action is at least threefold. In a former paper I observed that the acid had certain chemical and stimulating effects on a coagulum of fresh blood, which rendered it more susceptible of being again reabsorbed. I can now state, with something approaching to certainty, that the acid acts on a wound in the following ways, exclusive of its antiseptic influence, which I do not for a moment deny:—

[1st. That carbolic acid coming in contact with warm fresh blood hastens coagulation.

2nd. That carbolic acid appears to influence and favor the process of separation of the corpuscles of clotted blood from the fibrin, and thus prepares the corpuscles for reabsorption.*]

3rd. That carbolic acid, judiciously applied, stimulates disturbed and suppressed nutrition in a contused wound, so as to favor healthy granulations.

I have repeatedly observed, in dressing wounds, that carbolic acid, when brought into contact with warm human blood, coagulates almost immediately. I have also tested its effects on the blood of sheep and bullocks, and found it to produce similar results. Blood once coagulated consists of fibrin and corpuscles, the serum being set free. In the wound in this case I carefully preserved the clots from being removed with the dressings, in order to see the ultimate effects of the lotion on them. After the first dressing they appeared gradually to get smaller, and I have not the slightest doubt that disintegration and absorption were going on, and that particle after particle of these clots was taken up by the absorbents shortly after the application of the dressings. After five or six days scarcely any trace of the first clots could be discovered, and hardly any stain on the dressings. I believe the acid hastened the separation of the fibrin from the corpuscles, leaving the former to repair the waste, while the latter were thus prepared to again enter the system. We know that matter is continually passing into the blood from tissues that have fulfilled their appointed function, and that even new formations, such as pus and cancer-cells, are taken up on the same principle. In the absence, therefore, of pus or any sign indicating the transformation of these clots, I am at a loss otherwise to account for their disappearance.

I find that Professor Lister makes the following statement with regard to a case of compound dislocation of the ankle:—"The dressings were changed entirely after the accident. In doing this the greatest care is requisite, for the antiseptic injected into the wound on the previous day having been absorbed into the circulation..." I suppose this means that the extravasated blood, or at least certain portions of it, were absorbed, along with the antiseptic; for I cannot easily conceive how he was to know that the lotion was absorbed unless the blood of some of its constituents with which the lotion was mixed were absorbed also, which could only be known by the disappearance, in part or whole, of the clots. He again remarks, "Carbolic acid, when concentrated, is caustic"; and uses the lotion generally in the proportion of only 1 to 40, for fear of over-stimulation and unhealthy granulations. Surely, if the acid is caustic in its action when concentrated, the larger the proportion of it in a lotion the less cause will there be to fear unhealthy or over-granulation. I may add that I have in many cases of skin diseases used the pure acid without any irritating or bad symptom, and with great success.

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* The observations included within the brackets were made in a former communication.

The Professor further observes, referring to wounds: "The injured tissues do not need to be stimulated; all that they need is to be let alone." When the vitality of a part is at a low ebb from disturbed or suppressed nutrition, as in contusions, contused wounds, and the like, and the granulations are sluggish and indolent, are there not certain stimulating applications demanded, on the same principle as we recommend stimulants in cases of great weakness and debility? What applies to the whole body applies to a part, and *vice versâ.* Can we not aid Nature in her restorative efforts in contused and lacerated wounds, where there must be of necessity a certain amount of stagnation and inflammation, in any other way than by excluding the atmosphere? I can truly state, from experience, that in many cases I have treated with carbolic acid, where the granulations appeared slothful and almost inactive, the application of the acid lotion seemed to stimulate them to a healthy action. I have not seen any single case where the acid brought on unhealthy granulations and suppuration in consequence of its over-stimulation; and I use it on a large scale, and almost every day, from 1 to 8 down to equal proportions.

Callington, Cornwall, Oct. 1870.

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A NEW DIGESTIVE:

BEING A COMBINED SOLUTION OF PEPSINE AND PANCREATINE.

By Richard John Kinkead, B.A. & M. T.C.D., &c., Tuam, Co. Galway.

The value of pepsine as a remedial agent in cases of indigestion is generally admitted. But practice and experiments prove, what theory would have led us to predict, that it is only in certain forms of indigestion that it is of use.

Food is divided into two distinct classes—nitrogenised and unnitrogenised. The former is digested in the stomach, the latter in the intestine. The former is acted on by pepsine, whilst the latter escapes its action almost altogether. As far as we know at present, the only action pepsine, as it appears in the gastric juice, has on fat is to dissolve the albuminous cell-wall, and so leave the fat free to be acted on by the pancreatic secretion. This action of gastric fluid on fats suggests what may probably cause fatty indigestion, independent of any functional or organic disease of the pancreas. For the gastric fluid being deficient in quantity or quality, the albuminous cell-walls of the fat may not be dissolved; the fat cannot be acted on sufficiently by the pancreatic secretion, the cell-wall intervening, and consequently is not emulsified and cannot be taken up by the lacteals. On the other hand, disease of the pancreas or intestine, functional or organic, checking the absorption of fat, may cause indigestion, which will not be cured by pepsine.

As pepsine does not cause the fats to be digested, this indigestion, so common in phthisical cases, requires pancreatine, the action of the pancreatic secretion being chiefly the emulsifying of fats. This has long been suspected from the connexion observed between disease of the pancreas and the discharge of fatty and oily matters from the intestines. But latterly its emulsifying powers have been proved by Dr. Dobell, as evidenced in the pancreatic emulsion of fat which he introduced; and I think I am not saying too much when I affirm that the experiments of Mr. Long, which I subjoin, not only distinctly prove its emulsifying powers, but also demostrate clearly the part it plays in the digestive process. It is evident that, there being two classes of food to be digested, and each by different portions of the digestive tract, the more perfectly one is performed the more easily will the other be effected.

For instance, let us suppose the stomachic digestion to be weak: the fat-granules are not set free as perfectly as they ought from their cell-walls, the fibrine &c. is not as perfectly dissolved as it should be, and in consequence an imperfectly formed and badly mixed chyme is passed into the duodenum; the pancreatic secretion cannot do its work properly; the intestines have a partially formed emulsion presented to their lacteals; and, in addition, undigested lumps of nitrogenised food not only hinder the emulsion being applied to the lacteals, but also the irritation occasioned by these undigested particles causes a quantity of mucus to be poured out, and the contents of the bowel to pass too rapidly along to permit of a proper absorption.

So far for the effects of stomachic indigestion. Now let us see what may be the result of intestinal indigestion on stomachic digestion. The emulsifying of the fats, as they pass from the stomach, being imperfectly performed, the emission of the fat through the pylorus is checked, and consequently the food is detained longer in the stomach than is right; the proportion of fat to fibrine is increased, the fat enveloping the nitrogenised food hinders the action of the gastric juice, and acidity and stomachic indigestion are produced.

It is evident therefore that, in treating stomachic indigestion, it is important to accelerate the digestion of fatty and saccharine portions of the food: and in intestinal, to accelerate and perfect the digestion of the albuminoids. There are also cases in which digestion of both the nitrogenised and unnitrogenised food is at fault.

Accordingly, being impressed with these ideas, when some time since my friend Mr. Long sent me a sample of his solution of pepsine in glycerine, asking me to try it in practice and give him my opinion upon it, it appeared to me that a solution of pepsine and pancreatine, combined in suitable proportions, would fulfil the conditions necessary to form a perfect digestive. I therefore wrote to Mr. Long, and suggested to him the preparation of a combined solution of pancreatine and pepsine. The results of our correspondence and conversations on this subject I can best lay before the profession by publishing the following letter from Mr. Long. My own experience of the combined solution is limited but satisfactory.

Dublin, Sept. 12th, 1870.

My dear Dr. Kinkead,—Following up the subject of our conversations some time since, I have been making experiments on pancreatine obtained directly from the fresh pancreas of the calf. The result has been quite what might have been expected from *a priori* reasoning, as you will see from the subjoined statements.

Some difficulty was experienced in obtaining the solution of pancreatine in an eligible form for administration; but at last I succeeded in producing what as closely as possible represents the digestive fluids found in man. It is composed of pepsine and pancreatine in suitable proportions, using for the former a solution of pepsine introduced by me some time ago, and adding the solution of pancreatine as now prepared.

In the experiments made to test its effects a very curious result was observed. Meat—beef and mutton—digested in pepsine alone was found to be entirely dissolved with the exception of the fat, which floated as a film on the surface, and this film was entirely emulsified when a proper quantity of pancreatine was added, and the usual conditions as to temperature &c. attended to. This is exactly what we would expect, reasoning from known physiological principles. The fibre of meat, gelatine, &c., are dissolved in the acid secretion of the stomach, and pass with it through the pylorus into the duodenum, where the fatty matters, already softened or melted, are emulsified by the secretion poured from the pancreatic duct, converting the whole into the milky fluid, chyle, fit to pass into the lacteals.

I need not expatiate on the benefit of having at command a remedy of this kind in cases of emaciation, depending on any cause, but more particularly on mal-assimilation; any remarks of this kind will more properly come from the practising physician. I will merely observe that, as one of the principal difficulties in treating functional or organic diseases of the stomach is the almost impossibility of affording the rest so essential for repair or recovery, the next best thing is, obviously, to give that organ as little to do as possible. By means of the combined solution of pepsine and pancreatine we can artificially digest a considerable quantity of the necessary food, and by so much diminish the work to be done by the part requiring time to recruit.

Pepsine in an effectual form has been a great boon, but, as I have shown above, it will not digest the oily or fatty aliments; and we fail thus to supply the system with those substances demonstrated so clearly by Dr. Horace Dobell and yourself to be vitally necessary in strumous diseases. It is very obvious how desirable the action of this fluid will be as an addendum to the use of cod-liver oil. Many patients will be able to take it with benefit without those horrid eructations hours after being taken, arising from the inability of the stomach to digest it, thereby causing dyspepsia instead of increased nutrition.

The pancreatic emulsion, which has been of such signal benefit in your hands and others since first introduced by Dr. Dobell, has never seemed to me the nicest or most eligible mode of effecting what is desired. It is nauseous to the taste of many, and often keeps badly; and the quantity of mutton suet employed, which may be supposed to be all the fatty matter the pancreatine present is capable of emulsifying, is not as much as might be desirable in many cases. In some, suet at all may not be the most suitable form of fat. The fluid I may describe is very palatable, as you may observe, and will keep almost any time. It may be given with any kind of food. My experiments were made with fat mutton-chops and rich beef-steaks, as typical aliments, with most satisfactory results. I append a brief statement of the quantities, which you can use in any way you like, as also this note.

The first experiments, thrice repeated, were made with muriatic acid, water, and the combined solution, to represent the gastric juice, and pancreatic secretion. The second, with solution of pepsine alone, with acid and water, followed by the addition of the plain pancreatic solution after an interval of two hours. Both were entirely satisfactory; but the latter were peculiarly interesting in a physiological point of view, as stated above, and tend to show the exact part played by each fluid in the animal economy. But as the administration of two fluids in succession would be troublesome in practice, and be scarcely attended to by patients (at all times averse to trouble), I have thought it desirable to mix the two in one fluid. This has the advantage of being quite agreeable, as liquor of pepsine always is; while liquor of pancreatine not being so, its taste is entirely concealed by the former. Some medical friends of mine, to whom I have given a little of the small quantity made hitherto, have, you will be glad to hear, reported most favorably, after trial in practice. I also sent a bottle to you some short time ago, which I hope you have had an opportunity of testing fairly.

The experiments in the laboratory were as follows:—

No. 1.—Mutton (fat and lean about equal parts), one ounce; water, one ounce and a half; muriatic acid, fifteen minims; solution of pancreatine and pepsine, one drachm. Digested at 100° for four hours, this was converted into a homogeneous pulp, and, when diluted with a little water, presented quite a *chylous* appearance.

No. 2.—Beef (fat and lean), an ounce and a half. Treated in same way, with same result, the pulp being much deeper in color.

Nos. 3 and 4.—I then operated on the same quantities of each, first digesting with pepsine solution alone, as intimated above, and then adding the liquor pancreatine—keeping up the heat. In these latter experiments the result seemed more perfect, but, as I have said, the same procedure would be rather inconvenient in practice.

The results were found to be identical in three successive experiments, at intervals of several weeks.—Yours faithfully,

EDWARD LONG.

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ON RUPTURE OF THE EXTENSOR TENDON OF THE KNEE.

By GEORGE BUCHANAN, A.M., M.D.,

Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary; Professor of Anatomy in Anderson's University, Etc.

RUPTURE of the tendon of the quadriceps extensor cruris is an accident of sufficient rarity to give an interest to the following record of three cases which have occurred in my practice within the last twelve months. In two of the cases the tendons of both legs were ruptured simultaneously, in the third only one gave way.

CASE 1.—On February 24th I was requested to visit Mr. W——, by Dr. Steven, who gave the following account of his accident:—

"Mr. W——, aged over sixty, height above 6 ft., and stout in proportion, met with an accident at 1 A.M. on Feb. 24th. Was seen by Dr. Buchanan in the evening. Stumbled, through not observing the last step, at a door in town. Some years ago had, in jumping, sprained both knees, so that ever since, after sitting on a low seat, he has suffered a pain, and has often, among his friends, referred to the discomfort and the cause of it. Dating from the same time he has often appeared 'shaky' about the knees. On the 24th he thinks he fell in such a position as to fold his knees below him. The less complete rupture of the ligament of the left makes it probable that his weight was less thrown upon it at the moment of falling. He could not rise, or in any degree, with his legs, assist the friends who were with him to place him in a cab."

Immediately on reaching home he sent for me, and at 2.30 A.M. I saw him in bed on his back, with both legs extended, and without power to change their position. The right patella had its upper border projecting forward, so as to produce a marked transverse ridge over the joint, and on the femoral side of this ridge was a considerable depression, quite visible to the eye, which, upon palpation, was plainly due to detachment of the tendinous expansion of the extensor muscles of the limbs. The left knee presented the same appearances, with less elevation of the upper border of the patella, however. Any attempt to elevate the knees made the diagnosis at once plain by giving increased character to the local appearances noted; the depression above the patella becoming of greater extent, without the patella being moved at all, in the right, while in the left, though the gap was not extended, the patella was not acted upon by the tendinous fibres which remained untorn.

After a few days' fomentation, bandages were applied to bring up and support the patellæ, but no splints or other apparatus were used. Care was taken simply to keep the knees extended, without even raising the heels above the horizontal position.

Not a single untoward symptom occurred. He observed carefully and very patiently the somewhat irksome position. In six weeks the bandages were altogether removed; and he began to turn upon his side, and to move the knees within a limited range. After the first few days he was not prevented from dictating to a clerk in his bedroom, and so carrying on his business. In eight weeks he began to get propped up in bed. In a fortnight more he was allowed to leave bed daily, sitting for some time with his legs extended. There was some disposition to œdema of the feet; but in the course of time he began to move with the help of a pair of crutches, this became less and less. Since May he has come into town daily in a carriage, and also has spent a good deal of time in his garden; still, however, for security, availing himself of the support of two friends in coming down and going up the steps of his residence. For some time past he has given up the crutches, and carries two stout walking sticks, though he does not always use them.

CASE 2.—Joseph C——, aged thirty-nine, was admitted to ward 17 of the Glasgow Royal Infirmary on the 12th of May, 1870. Patient says that on the 3rd of January last, while walking at a medium pace he felt a giving way of something at both knees with a snap, then fell down, and was unable to walk. He was in perfect health at the time, and says he did not trip against anything, nor yet walk with any amount of vigor. He never had rheumatic fever, and is never troubled with anything like rheumatic pains.

On examination of the knees, there is found above each patella a gap in the extensor tendons, about an inch and a quarter broad, more appreciable towards its centre, and not quite so marked at each side—as if the centre of the tendon had been most ruptured. He can walk pretty well now, and can bend his knee slightly with ease.

June 10th.—Since last note patient has been lying on his back with his legs bandaged and elevated, and with a figure-of-8 bandage round the knee, so as to approximate the two ruptured ends of the tendon; and under this treatment the gap has got decidedly less, but still there is a vacuum of about half an inch between the two ruptured ends of the tendon.

23rd.—Patient was to day dismissed, with the injunction that he is to keep the bandage round the knee, and in walking, to bend the knee as little as possible, and to walk with his legs perfectly straight.

CASE 3.—This case occurred in the practice of Drs. Campbell and Kirkwood, of Largs, with whom I saw the patient on Sept. 17th. Mr. B——, aged eighty-four, a hale, healthy old gentleman, who had never been the subject of rheumatism, was walking in the garden on the 15th, when, on ascending a low step, he felt a weakness in his left leg, and fell forward on his knee. He was unable to rise, and, on being lifted, felt an inability to move the injured knee. When Drs. Campbell and Kirkwood saw him they at once recognised a gap above the knee, indicative of rupture of the tendon above the patella. When I saw him, two days afterwards, the gap was about half an inch wide, the edges being quite sharp, as if cut with a knife. As there was little tendency to retraction, Mr. B—— was simply enjoined to lie as quiet as he could, a bandage being applied for a few days to control muscular action, but to be discontinued as soon as the limb became accustomed to the straight position in bed.

Glasgow, Sept. 22nd, 1870.

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A CASE OF PUERPERAL CONVULSIONS BEFORE LABOUR, AND CONTINUED AFTER, WITH UTERINE PHLEBITIS; RECOVERY.

By WILLIAM DEELEY, M.D. New York.

Formerly Surgeon to the Adelaide.

ON the 17th of September, at 8 A.M., I was sent for to attend A. M——, aged nineteen, then in labour of her first child. She had been suffering from pains all night, which were strong and increasing; os dilating; membranes entire. At 11 A.M, during a pain, the membranes ruptured; and finding the head not descending with the pains, which continually increased in length, strength, and frequency, whilst she complained of pains in the head, and had suffused countenance, I sent for instruments, to be in readiness in case of need. Between the pains the patient walked about the room, then I had her placed on her side, back, and knees alternately. Still the head did not descend, the pains continuing all the while strong, long, and frequent. About 3 P.M., shortly after a pain, and whilst on her left side, a violent epileptic convulsion set in—foaming at the mouth, face horribly distorted and of a leaden hue. The muscles of the body, legs, and arms were thrown into violent action, the limbs jerked in all directions, with creaking sounds, as though every bone was snapping in pieces. Such was the violence of this terrible paroxysm that the room shook again, and the women in attendance all ran away frightened, thinking the spasms were the throes of death. As soon as possible I applied the long forceps over the forehead and occiput, and with steadily traction brought down the head, and delivered her, without any laceration, of a large living child, a boy, the patient being unconscious. Shortly afterwards she partly recovered consciousness, and then another fit came on. I removed the placenta and applied a binder. No hæmorrhage followed; but fit succeeding fit, I removed the binder and all pressure from over the abdomen. The uterus contracted, but the fits continued. At 6 P.M. I gave her forty drops of the syrup of chloral in a little water. In ten minutes she fell asleep, and slept for nearly two hours. The fits recurred violently every hour till midnight, when I gave her a drachm of the syrup of chloral, which quieted her for an hour; then the fits returned, and continued during the night, sometimes three in an hour—almost continuous. Between the fits there was insensibility (with constant rolling of the head from side to side, pupils contracted) till 7 A.M. of the 18th, when I took 20 oz. of blood from her arm. The rolling of the head then ceased, the tongue quietly remained in the mouth, and she seemed much relieved. I painted the nape of the neck with liquor epispasticus, and she then first exhibited signs of returning sensibility by a sort of low, half-muttered groan. Abdomen distended with flatus, and relieved by well rubbing it with turpentine, and then applying flannels wrung out of hot water all over the surface. Pulse 130; skin hot and dry. Divided eight grains of calomel and one grain of opium powder into four powders, one to be taken every four hours; with half an ounce of the following saline mixture: solution of tartrate of antimony, half an ounce; solution of acetate of ammonia (concentrated), two drachms; water to four ounces.

Sept. 18th.—6 P.M.: Has had no fits since the venesection. She is partially sensible, but cannot express her feelings; for when the legs were separated for the purpose of passing the catheter, she moaned and placed her hands on the vulva. No discharge from the vagina; belly tympanitic. Gave her an enema consisting of half an ounce of castor oil and half an ounce of spirit of turpentine, in thin gruel made with a fresh decoction of pennyroyal, which was retained till the

19th.—The patient micturated half the chamber-vesselful, the bowels being at the same time nicely relieved of a copious motion; a healthy discharge from the uterus commenced about the same time; pulse 120; swelling in the body disappeared. To have gruel, yelk of egg and beef-tea, new milk, &c.

20th.—I was sent for hurriedly, and found her in a state of wild delirium, supposing herself surrounded by snakes and enemies. It appeared that shortly after my previous visit some friends (?) called to see her, sat and talked a long time with her, and gave her some plums to eat. She became excited, said she was going to die, &c. Her pulse was 144; intense headache; hot, dry skin; uterus tender and painful on pressure. Gave her twenty grains of chloral hydrate in half an ounce of the saline mixture. She immediately fell into a quiet slumber, out of which I woke her to pour down her throat some fresh-made, strong beef-tea, and she went off to sleep again directly after. During the night, when awake, she had more beef-tea, and took also the yelk of eight eggs.

21st.—Calmer, yet delirious; great pain and tenderness over the uterus; pulse 130, and feverish. To repeat the chloral in the saline mixture, and the calomel-and-opium pill every four hours; hot fomentations and turpentine over the body. Great pain in her head, and quite blind when the head is raised.

22nd.—Pulse 125; less pain in the body; discharge healthy; passes water freely; bowels moved; pain in the head, with occasional delirium. Suspended all medicine, and continued support, which she takes freely—rabbit-broth, beef-tea, yelk of egg, milk, &c.

23rd.—Had a good night; no delirium.

From this date she steadily improved till Oct. 1st, when she sat up for an hour and a half, and on the 2nd for five hours, without inconvenience—sixteen days from the confinement, suckling her child the whole time.

New Malton, Yorkshire, October, 1870.

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ON A

CASE OF ERYTHEMA MULTIFORME COVERING NEARLY THE WHOLE SURFACE OF THE BODY, AND PASSING INTO HERPES.

By Robert Bell, M.B., L.R.C.S. &c.

My plea for bringing this case before the profession is, because I think the perusal of it will be interesting, as it is not an every-day occurrence to see almost the whole of the cutaneous surface covered with erythema, and this to pass into herpes: clearly demonstrating that herpes is erythema more highly developed; or, as Rayer expressed it, "Erythema and herpes are mere modifications of one affection."*

On the evening of August 1st, 1870, Mr. B—— sent for me, complaining of complete prostration with severe headache and general febrile symptoms. Pulse 120; tongue coated with a thick white fur; skin hot and dry. The urine was copious though high in color, and deposited a considerable quantity of lithates. His head was very hot, and the extremities were cold. He was ordered a warm bath, and his feet to be put into mustard and warm water; and a simple diaphoretic mixture was prescribed.

Aug. 2nd.—Patient has had a restless night; the fever still runs very high, and great thirst is complained of. A saturated solution of chlorate of potash was given, to take a sip of every hour or so; and the diet was limited to arrowroot and chicken tea.

3rd.—This morning a few papules made their appearance on the dorsal aspect of the hands and feet, but in the evening the whole surface of the body was disfigured by patches of erythema. What struck me as being worthy of note was the symmetrical arrangement of the eruption. From the soles of the feet upwards the erythema presented the following appearance:—Patches of a deep-red color almost covered the sole, the dorsal surface, and the outside of each foot; while a belt, about an inch and a half wide, encircled each ankle; and the legs and thighs were studded with small patches. The most extensive areas entirely covered with the eruption were over the groins, lower part of the abdomen, and the lumbar regions; but here the symmetry was somewhat disturbed by the erythematous blotch on the left side covering a much larger surface than that on the right: on the left side the width of the patch was fully nine inches. This was decidedly the most congested as well as the largest area affected: the color was a dusky red. The abdomen and back were thickly studded with smaller blotches, as also were both arms; but it was hardly possible to see a speck of healthy skin on either hands or face, and even the scalp did not escape. When this eruption had become developed, the fever somewhat abated.

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* Hebra on Diseases of the Skin, vol. i., p. 288.

4th.—The large patches on the lower part of the abdomen have begun to fade, but the rest of the eruption is as bright as ever. However, I assured my patient that the worst was past, as I fully expected that the whole of the eruption would follow the same course as that which was fading; but what was my astonishment in the evening to find that, instead of disappearing, each erythematous patch was literally covered with papules, which by the next morning had become developed into as many vesicles, so that a casual observer might easily have been deceived, and fancy, as one of my patient's friends persisted, that it was a bad case of small-pox. The whole surface, especially the face, hands, ankles, and feet, was profusely studded with herpes; yet although the crop was so numerous, and the vesicles in many cases touching, with one or two trifling exceptions they remained perfectly discrete. To give some idea how numerous the vesicles were on the face, it may be stated that they averaged fully fifteen to the square inch of surface, and around the ankles they were even more crowded.

The patches on the lower part of the abdomen and lumbar regions continued to fade, and, except that the place was marked by an excess of pigment. no trace was left of the eruption on these parts.

Notwithstanding this enormous crop of herpes, the cutaneous irritation was so slight that the feverish state spoken of quite disappeared when the vesicles were matured, and it never returned. A very little heat was experienced in the legs, but this was relieved by simply changing the position to a cool place in the bed-sheets. My patient also experienced considerable heat and tingling in the face, but this was at once relieved by the application of a lotion containing three grains of acetate of lead and a drachm and a half of tincture of belladonna to the ounce of rose-water.

The vesicular eruption continued till August 10th before it commenced to fade, but by the next day it had almost lost its herpetic character, and by the 12th the vesicles had quite passed into small crusts.

The treatment was purely expectant. A simple diet, consisting of farinaceous food, with milk, mutton, chicken, and beef teas, rest in bed, and attention to the bowels, were all that was observed.

Woodland-road, Glasgow, August, 1870.

ON TWO CASES OF

EXCISION OF TONSIL, FOLLOWED BY HÆMORRHAGE.

By Wharton P. Hood, M.D.

Three years ago I excised the left tonsil of a gentleman who had complained for some time of the inconvenience produced by its redundancy. The only unusual feature about the operation was this, that after I had cut through the upper half of the tonsil the further passage of the bistoury was barred, so to speak, by some hard substance. I made more pressure with the knife, and still could not continue my cutting. I then pulled strongly on the portion of tonsil held by the forceps, and feeling something slip from under the knife, found that the obstacle was removed, and the excision was easily completed.

On examining the portion of tonsil removed, I saw that the cause of my difficulty arose from a small calculus, about a quarter of an inch in length, milk-white in color, round and rough in shape—in fact, exactly resembling one of those sugar-plums, containing a coriander-seed, used as padding to a box of the larger sorts of French bon-bons. One-half of its length protruded from the mass in the forceps, and the cavity in which it had lain was plainly visible in the remaining portion of the tonsil.

As a rule, gargling the throat with cold water is sufficient to check hæmorrhage after excision; but in this case it lasted for several hours, notwithstanding the application of a variety of styptics, such as solid nitrate of silver, ice, perchloride of iron, &c., and I began to feel rather uncomfortable as to the result. Suddenly the patient said, "I feel very sick"; and sick he was to a very considerable extent, vomiting large quantities of partially digested food and coagulated blood.

When the sickness had ceased, I fully expected to have an increase of the bleeding, and looked rather anxiously into the mouth at the cut surface; but my surprise was both great and agreeable when I found that the cavity in the tonsil had disappeared, and, instead of an increase, a complete arrest of the hæmorrhage had taken place. I remained with the patient for some time, expecting that the stoppage was only temporary, but was very pleased to find that it was permanent.

A short time ago I was sent for to a patient in whose case both tonsils had been excised. The operation had been done at 1 P.M.; and when I saw him at 5 P.M. I learned that slight bleeding had continued until about 3 P.M., and after taking some food it had increased to such an extent as to alarm him. I tried varied styptics for a short time without any controlling effect. Recollecting the effect of vomiting in my previous case, I determined to give him an emetic. I gave him a scruple of sulphate of zinc in a little water. He was not sick for a quarter of an hour; at the end of that time he brought up little else than blood and water (he had sucked a good deal of ice). He retched for a short time after the stomach was emptied, and when the retching had passed off I examined the throat, and saw that the bleeding had stopped, as in the first case.

I am well aware that the result of a particular plan of treatment, tried in only one case, does not justify much faith being placed in its future success; but as I hope it will not fall to my lot to have any more exceptional cases of this description—for hæmorrhage after excision of the tonsil is exceptional, in my experience occurring twice in forty cases,—I call the attention of others to the use of an emetic under these circumstances, so that its efficacy may be tested when opportunity offers.

I presume that the hæmorrhage is checked in these cases by purely mechanical action—viz., pressure of the pillars of the fauces and the surrounding muscles on the tonsils. The closing-up of the hole in the tonsil in the first case is, I think, a fair proof of the amount of pressure exerted. I believe emetics of ipecacuanha have been found useful in post-partum hæmorrhage.

Upper Berkeley-street, Oct. 1870.

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ON THE
ANTISEPTIC TREATMENT OF WOUNDS.

By Joseph Morris, M.D., &c.

The antiseptic question has been and is still the subject of much controversy. There are those whose dogmatic temperament leads them at once to treat with scornful disdain any new theory, without giving it a fair trial with a view to test its real value. But to my mind nothing is more remarkable than the success which attends the proper administration of the principles of the antiseptic treatment, as laid down by Professor Lister. I am fully convinced that the want of success, as recorded by some eminent surgeons, may be traced to the laxity with which the steps of the treatment are followed out.

In a very extensive colliery practice, in which wounds of all degrees of severity are of almost daily occurrence, I have had many opportunities of using carbolic acid, and the results have far exceeded my expectations. Indeed, I do not hesitate to say that, were the antiseptic treatment carried out efficiently, suppuration in primary wounds would ere long become a thing of the past. The absence of pus and rapidity of reparation in wounds, may be looked for from the use of carbolic acid, as the two following cases will show.

A young lady, aged twenty-one, consulted me for malignant disease of the right mamma, of five years' standing, on the 5th of September. I removed the diseased mass in the ordinary way, thoroughly washing the exposed surface with a lotion of carbolic acid (1 to 20), bringing the edges together with sutures previously soaked in the lotion, dressing the wound with lint dipped in the same solution, and covering it over with a layer of tinfoil. The size of the wound may be imagined from the weight of the part removed, which was very little short of 2 lb.

Sept. 9th.—Dressing removed. Complete union has taken place, except a portion at the lower part of the wound an inch in length. The patient is well, and not suffering any ill effects from the operation.

14th.—Wound healed throughout. Patient able to take a long walk. Not the slighest signs of pus seen on the dressings.

Contrast this with a case operated upon by me twelve months ago, and in which water dressings were used. On the fourth day after the operation pus flowed copiously from the wound, and which continued more or less for five weeks. The breast removed in this case was not half the size of that removed on Sept. 5th. Both patients were alike favorable in general health for the operation.

On the 1st of this month a man came under my care suffering from a very large strangulated scrotal hernia. Every possible method was used to reduce, but without success. On the following day I relieved the strangulation, but without opening the sac. Carbolised lotion was employed, as in the former case. On the ninth day after the operation the wound had healed throughout; and, although I watched the case very carefully, I failed to detect the slightest sign of pus. Before the end of the second week the man was able to walk about and to bear the pressure of a truss.

On the 6th instant I was called to a woman suffering from severe injuries in the arm and head. On examination I found a large flap, the size of a man's hand when extended, breaking off the olecranon by the ulna, which was embedded in the flap, and completely laying bare the whole surface of the elbow-joint. The woman was also suffering from a severe scalp wound three inches in length. These wounds were the result of a blow from the sharp edge of a large iron fender. The wounds were washed with the carbolised solution, the olecranon brought into its proper place, and the same dressings were used as in the former cases.

Oct. 9th. — Wounds dressed. Scalp wound healed throughout. A slight clear watery discharge appeared on the dressings removed from the arm.

16th.—Arm dressed; union almost complete; no pus can be seen.

21st.—Wound healed. Passive motion used.

31st.—Able to use the joint with comparative ease.

Barnsley, Oct. 1870.

◆

SUBAQUEOUS SURGERY.

(OPERATIONS UNDER WATER.)

Translated from the "Pabellon Medico," by

J. Mulvany,

Assistant-Surgeon Royal Navy, Haslar Hospital.

In the treatment of diseases of the closed cavities the impression that the entry of air is extremely hurtful has led to the employment of a great diversity of proceedings for its preclusion. A new method, which consists in operating under water, and avoiding the entrance of air afterwards by a perfect occlusion of the opening, is much lauded by Dr. Gritti, surgeon of the hospital at Meilat.

The patient is introduced into a large warm bath (the water reaching to a level with the part to be operated on), and the operation is effected as in the open air. Thoracentesis, punctures of dropsical joints, extraction of foreign bodies from the knees, subcutaneous division of tendons and aponeuroses, subcutaneous section of veins for the cure of varix, punctures of abscesses (hot and cold), have thus been practised.

Amongst other notable instances of thoracentesis the following will serve as an example:—

A woman aged forty, suffering from empyema of the left pleura (once already operated on in the ordinary way in the open air), was placed in a bath at 25° C. (77° F.) The left arm was raised, and the axilla being maintained on a level with the water, a large trocar was introduced between the sixth and seventh ribs, and exit given to a dense, yellowish liquid, which, slowly issuing through the aperture, became diffused in the bath. The deep inspirations provoked by coughing neither opposed any impediment to its flow nor caused the aspiration of water from the bath into the chest. The patient was but little incommoded by the sedentary position necessitated by the operation.

This case demonstrates the feasibility of the operation, but does not suffice to sanction its innocuity. Besides, all patients cannot equally sustain immersion in a warm bath, and it is presumable that violent accession of cough may, by interrupting the flow of liquid from the chest, cause water to be drawn through the wound, and thus superinduce collapse of the lung (dyspnœa). Further experience is therefore required to test its value, and to point out the indications and contra-indications for and against its employment in empyema.

Similarly, in a case of hydrarthrosis, the knee being maintained on a level with the water, and compressed by the hands of an assistant, so as to render the capsule as salient as possible, the joint was punctured by a large trocar. (The patient was a painter, thirty years old, who had run the gauntlet of the Parisian surgeons without experiencing benefit from a most extensive application of remedies.) A semi-purulent liquid, containing creamy albuminoid, curd-like particles, escaped; and on the third day cicatrisation was complete, without accident. The liquid being reproduced, the patient did not wish for another operation.

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AUTOPSY OF A CASE OF CYANOSIS.

By W. H. Sheely, L.R.C.P. Ed., M.R.C.P., &c.

M. M——, aged sixteen, was seized, in going upstairs, after she had partaken of supper, with a fit of giddiness with sickness and vomiting. She was assisted into her room, and on being placed on the bed fainted, as her mother thought, and I was at once sent for. I found her dead, with dark purplish-blue color of body and face generally. From the parents' statement I gleaned that she had been examined by two medical men at separate intervals, both pronouncing her case to be heart malformation, due to the existence of "a passage between the auricles." I had never attended her. Owing to some opposition on the part of the parents, the post-mortem was delayed, and decomposition had set in considerably.

Autopsy, seventy-two hours after death.—Rigor mortis almost complete. Body apparently well nourished. No marks of violence. Intense purplish-blue color of face and body. Venous blood oozing from mouth and nose. General emphysema of subcutaneous areolar tissue; felt like lung-tissue. Scalp deeply congested. On removing the calvaria there was an escape of a large quantity of black, venous blood,—nearly a pint I should think. Dura mater contained extravasated blood: brain-substance less firm than in health; sinuses contained black blood. The pleuræ were adherent throughout. Lungs congested and emphysematous. Areolar tissue of mediastinum emphysematous. Pericardium contained about a teacupful of dark-colored fluid. Heart congested, large, and flappy, and was empty, with the exception of a small clot in right ventricle, weighing twenty ounces. Foramen ovale closed, having two transversely oval foramina, about the size of a large blanket-pin's head, about its centre; on making the membrane tense transversely, their edges were brought into apposition. Ventricles considerably hypertrophied, with some degeneration of the substance of the walls. The septum was occupied superiorly by an abnormal aperture the size of a florin, allowing communication between the ventricles. This foramen was partially closed during systole by a membranous prolongation of the lining membrane in the form of a lunated valve, the concavity being directed towards the apex, and connected to the walls of the ventricle at its free edge superiorly by fasciculi resembling cordæ tendineæ. Valves healthy, but somewhat thickened; pouch of Valsalva enlarged. Abdominal viscera generally congested.

There can be no doubt that death was caused by the exertion of walking up-stairs (having always been carried previously), paralysing the heart with præcordial oppression, &c., which, from the distended state of the stomach with food, produced vomiting, by irritation of pneumogastric nerve; the effort rupturing the already over-distended superior longitudinal sinus, causing extensive extravasation of blood between surfaces of the dura mater, and pressure of brain (venous apoplexy).

Claremont-square, September 1st, 1870.

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ON A CASE OF

INDUCTION OF PREMATURE LABOUR,

AND EXTRACTION OF THE PLACENTA TEN DAYS AFTER THE EXPULSION OF THE FŒTUS.

By Charles Roberts, M.R.C.S.

The following case tends to prove the great advantage to the poor of cottage hospitals; and also helps to bear out the remarks of Dr. Playfair at a meeting of the Obstetrical Society, that "retention of secundines was most likely to occur in the third and fourth months."

The patient, aged thirty-nine, has for years had contraction of the pelvis, and of four of her children that are now living she has been delivered by forceps. More than two years since, having gone her full time, it was found impossible to deliver with forceps, and craniotomy had to be performed, after which she was delivered with difficulty. About fifteen months ago, being then five months pregnant, premature delivery was induced by puncturing the membranes, and all went well.

On the present occasion, being again gone in the family-way between three and four months, I introduced on the 26th of July a sea-tangle tent in the os uteri. This was retained till the 29th, when it was expelled. Next day I introduced another, which was expelled the following day. On August 1st I introduced a third, and in the evening the membranes ruptured, and liquor amnii escaped. Ergot was then given every four hours; but it was not until the 4th that regular pains made their appearance, and the funis descended into the vagina. On the 5th I sent her to the Hillingdon Cottage Hospital, and on that day soon after admission the fœtus was expelled. I saw her within an hour, and found there was no effort to expel the placenta, and the os uteri so closed as to barely admit the tips of two fingers. Not a drop of blood had escaped. All my efforts to get at and remove the placenta failed, although I tried again that evening and also the following morning; so I had to content myself with giving several doses of ergot, and await the course of events. Things went on in this condition for six days. She improved in health, and there was not the slightest bloody or fetid discharge. On the night of the 11th July, however, some considerable quantity of blood and several clots passed. The nurse did not call me, thinking the placenta was among the clots. This, however, I found not to be the case, and gave her directions to send immediately if fresh hæmorrhage occurred, in the hope that from loss of blood the os might yield, so as to admit of my extracting the placenta. At 11 P.M. on the 15th, fresh hæmorrhage to a considerable extent took place, and she became faint. I was then able to introduce two fingers into the uterus with much difficulty, and found the placenta firmly attached on the left side of the fundus, but succeeded in detaching and removing the whole piecemeal. The operation took *two hours*. On the evening of the next day symptoms of peritonitis showed themselves, but were quickly allayed by opium and turpentine stupes. From that time she made a rapid recovery, due in a great measure to the constant attention, good nursing, and diet, which she could not have had at home.

Uxbridge, October 31st, 1870.

REMARKS

ON THE TREATMENT OF INCONTINENCE OF URINE.

By William Thomson, M.D.

The remarks by Mr. Yeo in The Lancet, on the "Action of Belladonna in Arresting Nocturnal Incontinence of Urine," induce me to publish my recent experience in the treatment of that functional phenomenon.

Six months ago a patient informed me that her daughter, aged twelve, suffered from this complaint, but supposed medicine would not do her any good, as she had suffered from it for two years. She looked healthy, not at all anæmic, appetite good; in fact, enjoyed perfect health, with the exception of the frequent desire to pass water, and the inability to retain it during sleep. As I was anxious to show my patient that medicine would do good, I thought chloral hydrate likely to have the desired effect, at least in checking the nocturnal symptoms. I ordered her fifteen grains every night on going to bed, to fast from 7 o'clock till next morning, and to eschew beer and spirits. I did not see her for two days; when her mother informed me she was cured. The very first night she rested well, and did not get up once, instead of four or five times as formerly, besides wetting the bed nightly. She still had the desire to go frequently in the daytime. I ordered her, therefore, to continue the medicine for a fortnight, decreasing the dose to ten grains, which she then discontinued entirely, and was perfectly well when I saw her last week.

I felt delighted with the success of the chloral in this case, but waited anxiously for further trial, which, I am happy to say, came soon afterwards. I was applied to for a boy aged thirteen, who had nocturnal incontinence since he was six years old; but not the day symptoms. I gave him fifteen grains of chloral at bedtime. He slept well till five in the morning without his usual misfortune. At the end of a week I advised him to have some more medicine; but he said he thought he did not require it, as last night he omitted to take his dose, and all was well this morning. Continued the medicine a week longer—i. e., three weeks ago. Since then he has remained quite well.

Now here is a remedy most simple in its action, without any of the unpleasant effects of belladonna on the vision, &c. Where the case is merely one of habit, as both the above, we could hardly expect a more simple and efficient remedy than chloral, which, by its ensuring the bladder and sphincter vesicæ a quiet night's rest, enables them in a few days to regain their normal tone, and the patient his wonted vigor, so that he may retire to rest without his former dread of a disturbed night, or of awakening in the morning to find he is a defaulter to the laws of cleanliness and health.

Peterborough, Oct. 31st, 1870.

NOTES OF TWO CASES OF

SEVERE DIARRHŒA CURED BY SINGLE DOSES OF CHLORAL HYDRATE.

By Evan Cameron, M.B., C.M.

Chloral is at present claiming great attention from the profession. Day by day its sphere of usefulness is increased; but I am not aware that it has as yet been tried in those severe cases of diarrhœa which are so common at this season, and this year so unusually fatal.

(1) J. S——, a laborer, about fifty-five years of age, was attacked early on the morning of August 21st with severe vomiting and purging. Domestic remedies were employed for a few hours without any effect, and when I was sent for I found the patient much exhausted—so much so, indeed, that he could with difficulty maintain his seat on the stool from which he had not moved for hours. The vomiting was incessant. I prescribed twenty grains of chloral with fifteen minims of chloric ether in two ounces of water. In ten minutes or so the patient felt easier, and was able to lie down in bed, when he immediately fell asleep. He slept for five hours, and on awaking said he felt quite well, though feeble. He never vomited after taking the chloral, neither did he pass any more loose stools.

(2) J. L——, a tailor, seventeen years of age, was taken ill about 8 A.M. on the 27th of August with vomiting and purging. This state of matters

continued without intermission till 9 o'clock. At this hour I was sent for, the messenger stating that the patient was dying. I found him in a state of collapse; the whole body was cold, more especially the extremities, which together with the lips, were of a livid color; the face wore a pinched expression; pulse imperceptible. Hot-water bottles, hot flannels, friction, &c., were employed with success, and in twenty minutes or so the patient commenced to rally. Brandy was administered with great benefit. At 9.30 he took a draught containing fifteen grains of chloral and fifteen minims of chloric ether. In a few minutes afterwards he fell asleep. He awoke about 1 P.M., when he expressed himself as feeling very comfortable. By evening he had rallied so much that he insisted on getting up. Both the vomiting and purging ceased entirely on the exhibition of the chloral.

Denholm, Sept. 5th, 1870.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. MARY'S HOSPITAL.

CASES OF ABDOMINAL NEURALGIA; CLINICAL REMARKS.

(Under the care of Dr. HANDFIELD JONES.)

THE following series of cases is interesting as illustrating the diagnosis and treatment of a disease that it is not always easy to distinguish from other affections in which pain is referred to the abdomen, especially peritonitis, lead colic, and hysteria. The points on which Dr. Jones chiefly insists appear to be—1. That the region of the abdomen, probably its peritoneal lining, is liable to suffer from neuralgia and hyperæsthesia, such as prevail in other situations more notoriously prone to this malady. 2. That such neuralgic affections may very closely simulate peritonitis. 3. That they may be attended with high temperature. 4. That they may possibly pass into peritonitis. 5. That, in their treatment, opium (preferably in the form of enema), tonics, and restoratives, prove to be successful remedies.

The first case is that of M. W——, aged forty, a married woman, who was admitted on the 9th September. She stated that three days previously she had been seized with pain in the lower part of the abdomen and the hips, so violent as to draw her double; since the day before admission it had been gradually subsiding, but with occasional aggravations. Whilst the pain was at its worst the abdomen had been so exquisitely tender that she could scarcely draw her breath, and whilst sitting up she had felt sick. On admission she flinched violently when the left side of the abdomen was touched, and she felt pain on coughing or drawing a deep breath; when she turned on to the right side she experienced a feeling of dragging in the left; the tongue was thickly coated with white fur; the pulse was 78, and not very weak; the temperature 99·3°; there was no blue line on the gums. The right side of the abdomen was resonant, the left dull, and these sounds were not altered when she moved on to her right side. She had no appetite, but was very thirsty; the bowels were habitually confined; the urine was very red, and passed with pain; there was also pain on passing her motions; the catamenia had not appeared for six weeks, but she had a profuse leucorrhœal discharge. There was no history of lead poisoning. She said that she lived over some stables, and had experienced a similar pain several times during the past three or four years; she felt very weak, and the least thing threw her into a "fainting perspiration." She had not been able to sleep during the previous night because dreadful sights appeared directly she closed her eyes, "blood and all that sort of thing, mice running about," &c. The bowels were first relieved by an aperient, and then an enema containing twenty drops of laudanum was administered, and followed by a great abatement of the abdominal tenderness. The treatment was then made to consist of one-twentieth of a grain of strychnine, one minim of nitric acid, and ten of chloric ether, in an ounce of water, four times a day; with simple diet, a pint of milk, and four ounces of sherry. On the second day her sleep had been disturbed in the same manner as before; the abdomen was quite soft and only slightly tender. On the third morning the sleep had been sound and uninterrupted; the bowels were relieved by an enema, and the diet was changed to chop, pudding, and porter, the medicine to twenty grains of the saccharated carbonate of iron, three times a day. On the seventh she was still improving, but, on getting up, the pain and feeling of faintness returned slightly. In a few days more she was discharged.

The second case was that of A. N——, aged twenty-six, a married woman with three children. She was admitted on Sept. 10th, and gave the following account of herself:—She was in charge of a house which had just been painted, and smelt strongly of paint and varnish, when, three weeks before admission, she was attacked with severe headache, which, two days later, was replaced by an abdominal pain which she described as having been "frightful" in severity, and since its onset she had been unable to lie on either side, or to obtain sleep at night. She had been feverish and without appetite. No other inmate of the house had been out of health. She looked thin and anæmic, had a copious leucorrhœal discharge, and was suffering such intense pain that six leeches were immediately applied to the abdomen, and followed by poultices. On the 13th Dr. Jones found her very weak, complaining of great pain on the left side of the abdomen, but lying with the legs extended; the left flank of the abdomen was dull on percussion; the other regions were resonant. The pulse was 102, not very weak; the temperature 102·5°; the tongue moist. There was no flush on the cheeks nor eruption on the abdomen. The bowels had not been open for two days; the appetite was good; the breasts did not secrete much milk. She was ordered an enema of castor oil, to be followed, after the action of the bowels, by a simple enema containing twenty drops of the tincture of opium; also a draught of four grains of carbonate of ammonia and one drachm of tincture of bark, in an ounce of decoction of bark, three times a day, with a generous spoon diet. On the fourth morning she awoke in great pain from a sleep which had lasted from early in the previous evening. The pulse was 105; the temperature 103·4°. The abdomen was fomented, and another opiate enema administered, and she was ordered twenty grains of the saccharated carbonate of iron thrice daily, in addition to the draught. On the seventh day the pulse was 88, the temperature 99·7°, and pain of a much less severe character recurred from time to time. The diet was changed to one of meat and porter. On the eleventh day the temperature was 100°, and, in consequence of copious night-sweats, the ammonia-and-bark draught was abandoned for one containing four grains of quinine. Subsequently a chloride-of-zinc injection was made use of to check the leucorrhœa. Twenty-eight days after admission she only complained of an occasional return of pain towards evening. No blue line was observed at any time on the gums.

The third case was also a woman, thirty-three years of age, and single. She stated that she had been indisposed for a fortnight, and had kept her bed for a week. The first symptom had been pain at the upper part of the abdomen, all round it, and in the back, great pain also followed on taking food, and was relieved by vomiting. At the time of admission the pain seemed to be violent; she was found to be bending herself down and moaning; the tongue was moist, and tolerably clean; the pulse 80; the temperature 97·5° F. The abdomen moved a little in respiration, but the muscles were at times very hard and tense; there was no eruption. She had no appetite, but was very thirsty. On inquiring into her history, it was elicited that seven years before she had lived in a house whilst it was being painted, and that she suffered at the time some nausea; also, that two years before admission she had suffered for a short time a somewhat similar kind of pain. The teeth were found to be so encrusted and soiled with tartar that it was difficult to determine whether or not a blue line was present. She also complained that for a year she had had pain about the rectum, accompanied by a frequent desire to defecate; but she had never experienced any pain during the passage of her motions. The uterus was found to be reclined, the fundus lying near, if not upon, the rectum. She was first ordered a grain of opium every four hours, ice to swallow, poultices to the abdomen, and a subcutaneous injection of ten minims of solution of opium; but neither these remedies, nor an opiate enema which had been administered, were found on the following day to have afforded relief. She was found to be twisting and writhing in bed, although the abdomen bore pressure fairly well. The pulse was 72, and not weak; the urine clear and of high color. She was then ordered a drachm of tincture of valerian and four grains of carbonate of ammonia, in an ounce of infusion of valerian, thrice daily; but she obtained no sleep during the following night, severe pain being excited every time she moved; and, in the morning, the abdominal walls were found to be hard and retracted. The temperature was 98·9° F. An opiate enema was followed by relief, and a grain of opium was ordered to be taken every two hours. On the eighth day two grains of iodide of potassium were added to the draught. On the fifteenth she was ordered, in addition, twenty grains of saccharated carbonate of iron, thrice daily. On the sixteenth day the pains became regularly paroxysmal, returning morning and evening at half-past ten o'clock. On the same date she began to sweat a great deal at night; ten grains of quinine daily, in two evening doses, reduced the severity but not the duration of the attacks. The amount of quinine was then doubled by giving four doses daily instead of two, and by the twentieth day she was free from pain and improving in general condition. After this the pains returned slightly, and a treatment as for lead colic was essayed, but, proving unsuccessful, was changed for citrate of iron and quinine, under which they soon began to disappear; and within little more than a month from the date of admission, though the patient suffered occasional returns of pain, the abdomen was soft and mostly quite free from tenderness on pressure, and she was discharged at her own request.

These cases, Dr. Jones said, were fair specimen cases of a disorder which is by no means rare, at least among the poorer classes. In calling it "abdominal neuralgia" he had followed unwittingly the example of the late Dr. Addison, who had written a very full and interesting paper on the same disorder in connexion with uterine irritation. The term might be thought too vague, but he preferred it to any other, for the reason that it did not appear to him that any organ is specially affected, and that any part of the region in question might be attacked. If he were pressed to localise the disorder more exactly, he should name the peritoneum as the most probable seat, partly on account of the quality of the pain, partly because this membrane is coextensive with its situation. Romberg had described a hyperæsthesia of the mesenteric plexus, but the description he gave of it seemed more applicable to colic than to the malady they were considering. A perusal of the cases, Dr. Jones thought, indicated that the resemblance of the symptoms, especially the pain, to those of peritonitis was quite close enough to make the diagnosis sometimes sufficiently difficult. Dr. Addison had said that the pain occasionally attacked the whole of the belly, exactly simulating acute peritonitis, and that he knew of no more puzzling disease. The points which would prove most serviceable as guides were the previous history, the temperature, the posture, the respiration, the pulse, and the physical signs. If the patient appeared to have suffered from any cause of exhaustion, such as lactation, profuse leucorrhœa, over-exertion, semi-starvation, or the like, a neurosis was a more probable result than inflammation. If the disease was of long duration, such as from two to three weeks or more, and the pain persisted with severity, especially without the development of any other symptom, it could not be peritonitis; the same would probably apply if there was a history of several similar previous attacks. If the temperature underwent no rise, it afforded strong evidence against the existence of inflammation, though a high temperature could not by any means be taken to prove the converse. The second case indicated a temperature befitting typhoid fever, and it was only the sequel which conclusively showed that the pain was purely neurotic. It had been supposed that neuralgia could not coexist with pyrexia, but he had recently seen a case of ephemeral fever in which the patient complained of agonising pain in the limbs, and the temperature rose to 103°; on the day following the pain had greatly abated, and the temperature was found to be normal. As regarded posture, the peritonitic patient was said to lie in a fixed position, instinctively avoiding the slightest movement; the neuralgic often turns and writhes about: the former abstains from using the diaphragm in respiration, the latter does not, or, at any rate, not to so great an extent. After a few days the physical signs would probably afford decisive information. The dulness in depending parts of the abdomen, due to effusion, is not present in neuralgia. So, also, abdominal distension may be looked for in peritonitis, but not usually in neuralgia; though Dr. Addison speaks of a very marked instance of the latter, in which the belly was as tense as a drum and exquisitely tender. The case had been regarded as one of chronic peritonitis, and the surface of the abdomen "presented a most singular appearance from the thousands of leeches" which at various times had been applied. A very important question might be raised—viz., whether a primarily neuralgic disorder may not pass into an inflammatory. Dr. Jones's belief was that it might, and though he had not observed it in abdominal cases, yet there was considerable evidence, he thought, that such a change may occur in facial neuralgia. For further remarks on this topic he referred to his work on the subject. Some might be disposed to look upon these cases as examples of hysteria, and would have summarily dealt with them by the treatment which Sir T. Watson recommends — namely, purging, followed by an assafœtida enema. To this he altogether demurred. If any definite meaning was to be attached to the term hysteria, it must imply that the patient's will was defective, that she was not sincerely anxious to get well; that, in fact, she wanted moral treatment more than medicinal. Such, he was satisfied, was not the case with the patients in question. The pain felt was, as far as he could judge, as *bonâ-fide* a pain as ever racked a sufferer from sciatica or tic douloureux; they recovered speedily, and under such treatment as was known to benefit neuralgia elsewhere.

The occurrence of some amount of nocturnal delirium, and that of a terrifying and distressing kind, in the first case, Dr. Jones added, deserved remark. Such disorder was, if he might use the term, quite *homogeneous* to neuralgia, both affections having their root in a feeble paretic state of nerve-centres, and being, as it were, branches of the same stock. The derangement, in fact, was of the same kind in both, and the diversity of phenomena depended on the site of the morbid action; the intellectual centres being affected in the one case, the sensory in the other. There were also indications that the vaso-motor nerve-centres were involved, and suffered in a like way; for the patient in the first case complained of "faint perspirations" — i.e., perspirations attended with a sense of faintness: and in the second, of copious nocturnal sweating, precisely such as is met with in maladies of exhaustion.

Another noteworthy point observed, especially in the first case, and which Dr. Jones said he had not unfrequently met with in other unquestionable neuralgias, was the reproduction of the pain by exertion. This depended on the fact (for such he held it to be) that consumption of nerve-force in one centre, or, to speak more correctly, of material qualified to generate nerve-force under oxidation, diminishes its production in another, and so favors the recurrence of a disorder which is essentially dependent on the failure of nerve-force.

The special cause of the disorder in these cases could not be said to be clearly ascertained. It might be thought that the second was one of lead-poisoning, as the patient had been exposed to the smell of paint; but he could not take that view. There was no notable constipation, and no blue line on the gums. The pain was not like that of colic; it was attended with fever, followed by copious night-sweats, and cured by tonics. He had never seen anything like this in the frequent cases of lead disease he had met with. The lactation and leucorrhœa no doubt had materially promoted the action of the exciting cause.

The diagnosis once made, the remedies to be used were plain. Opium to relieve suffering, tonics to restore strength, the action of both being *led*, rather than seconded, by repose and good nourishment. In doubtful cases, after ascertaining that the bowels had been sufficiently cleared, he advised the use of an opiate enema before applying leeches. The result of this means might be so satisfactory as to make the further treatment clear. On the other hand, it was to be observed that in a puzzling case Dr. Addison thought it an error on the right side (for an error it proved to be) to employ the remedies for peritonitis. The few leeches which were applied in the second case gave relief; but he, nevertheless, thought they were unnecessary and undesirable. It was by no means impossible for such means, by the temporary benefit they produce, to betray the practitioner into their repetition, with ultimately disastrous consequences.

UNIVERSITY COLLEGE HOSPITAL.

CLINICAL REMARKS BY SIR WILLIAM JENNER.

The Physical Signs of Fluid in the Chest.—With reference to a patient suffering from pleurisy, Sir William Jenner said that all the signs of fluid in the chest, that to which students presenting themselves for examination appear to attach most importance is œgophony; whereas, like pectoriloquy in phthisis, it is the least reliable symptom of the condition which it is supposed to characterise. The evidences which could most certainly be depended on in the determination of this condition were, he said, dulness on percussion, impairment or absence of thoracic movement, and displacement of organs.

The Diet of Typhoid Patients.—Sir William said that, in the present day, the subjects of enteric fever are made to suffer much more frequently from the effects than from the want of stimulants, which should never in these cases be given before the occurrence of a special indication for their exhibition. And with regard to their food, he said it should consist of beef-tea and milk, with occasionally a little farinaceous food; but, in order that they may not be altogether deprived of the beneficial effects of vegetable juices, he recommended that portions of vegetable should either be grated into the beef-tea, or boiled in it and afterwards removed by straining.

The Diet of Diabetics.—The effect of a purely animal diet on the nutrition of diabetic patients, Sir Wm. Jenner said, differs very much in different cases; thus one patient will rapidly gain weight and flesh, another will remain much as he was, and a third will waste rapidly and die. Therefore, he said, as the two most frequent terminations of the disease, against which it should be our object to guard, are death from exhaustion and death from phthisis, it is always desirable promptly to test the effect of this regimen by the use of the weighing machine.

Anæmic Murmurs.—These murmurs are not, Sir William remarked, blood-murmurs in the sense that they are produced by alterations in the constitution of the blood, independently of any alteration in mechanical relations which exist between the blood and the heart. On the contrary, a bruit, in every way corresponding to these so-called anæmic murmurs, can be produced at will, by exercising a little pressure with the hand over the cardiac region of a person whose sternum is unusually flexible; as can readily be demonstrated in children with a narrow yielding chest.

How to Examine Sick Children.—Sir Wm. Jenner impressed upon his class the importance of having children stripped for examination; because, as they are so frequently unable to express their feelings, a careful examination of the whole body is sometimes the only means of discovering the cause of their suffering. The very attitude and movements of a naked child would often, he said, convey valuable information to a practised eye. As a striking illustration of the value of this means of observation, he alluded to a case in which he had been asked by the physician in attendance to look at a choreic child, who was said to be so irritable and impatient of interference as to be almost intractable. Her face, however, appearing to express real distress, he caused her to be stripped. A slight swelling, due to rheumatic joint inflammation, was then for the first time detected. This discovery led to auscultation, and thus to the detection of an acute inflammation of the pericardium and endocardium, to which the child succumbed two days later.

Cardiac Murmurs in Chorea.—The murmur which is not unfrequently heard in choreic patients, Sir William affirms, is a mitral regurgitant murmur, due to irregular action of the papillary muscles, sometimes accompanied by irregular contraction of the heart itself. Thus cases are met with in which there is irregular action of the heart with an occasional murmur, or irregular action with a constant murmur, or regular cardiac action either with a constant or inconstant murmur; and in all these cases the murmur, and irregular action when present, disappear either shortly before or shortly after the cessation of the choreic movements of the voluntary muscles. Murmurs first detected during a choreic attack may remain after its subsidence, but in these cases there has been at some time inflammation of the endocardium.

OPERATIONS BY MR. MARSHALL.

Operation for Fistula in Ano.—The patient was an elderly man, of remarkably healthy appearance. The fistula, which was the consequence of an abscess in some hæmorrhoids, was not a complete one; but its course, which appeared to be about two inches in length, though superficial in its relation to the skin of the buttock, terminated near the mucous membrane of the rectum, and in such neighborhood to the sphincter as to require the complete division of this muscle by passing the director into the bowel, and laying open the whole track. As it was lined with firm glistening cicatricial tissue, this proceeding required the employment of an unusual amount of force.

Mr. Marshall pointed out how essentially this fistula differed from those met with in persons of tuberculous constitution. Instead of travelling some distance underneath the mucous membrane of the rectum, enclosed by walls of soft and easily-broken tissue, it was situated chiefly under the skin, terminating short of the rectum, and sheathed with a firm, gristly substance. The conditions of health to which these circumstances were due, were said to justify the expectation that a complete cure would result from the operation.

Incision of a Perineal Abscess.—In this case the patient was a healthy-looking lad of about thirteen years of age. The abscess, having made its appearance when he was three years old, had continued alternately active and quiescent, at short intervals, until about four years ago, when it was lanced by a surgeon. This operation was only followed by a term of temporary relief, after which it resumed the old habit, and when the matter had re-accumulated it was occasionally released by the prick of a needle. Mr. Marshall said that, had the abscess been of a strumous nature, it could scarcely have existed so long without effecting a passage into the bowel. From its history and situation, he suspected that it was rather due to an abscess in, or a cyst formation in connexion with, one of Cowper's glands. The only visible indication of its presence was a small red point a little to one side of the raphé, about half way between the scrotum and the anus; this, when incised, emitted a smal quantity of pus; but as, on introducing his finger through the wound, Mr. Marshall discovered a cavity extending to the opposite side of the raphé, in which the corresponding portion of the urethra could be felt lying, as it were, naked, he carried the knife across so as to lay the cavity well open, thus making an incision similar to that adopted in the bilateral operation for lithotomy. Mr. Marshall expected a cure to be effected by the healing of the cavity from below.

CASES UNDER THE CARE OF MR. MARSHALL.

Iodide-of-starch Dressing.—In the wards Mr. Marshall pointed out a bad case of tertiary syphilitic ulcer of the leg, which was being dressed with the iodide of starch. This preparation, by yielding up its iodine, becomes decolorised in the course of about twenty-four hours. In the present case it had immediately destroyed all fetor, and very soon improved the quality of the discharge, and the character of the granulations. The internal treatment consisted in ten-grain doses of iodide of potassium.

Abscess beneath the Pectoral Muscle.—The patient was a man of about middle age. Between the nipple and the sternum on one side the tissues were thickened and brawny, and covered by dusky red skin, which was perforated by two small fistulous openings, exuding a thin ichorous discharge. On introducing a probe, it moved freely in a cavity beneath the pectoral muscle, but when bent was found to pass over the upper edge of the rib, and come into contact with its posterior surface. Mr. Marshall said that the affection had probably originated in inflammation of the periosteum of the posterior surface of the rib, and that the matter passing forwards had burrowed under the pectoral muscle, and found its way through it to the surface; adding, that it was to be remembered that periostitis of the ribs almost always affects that surface which is covered by nothing more than the parietal layer of the pleura; and that in all probability a piece of dead bone would in course of time come away, and would be followed by the healing of the abscess.

Stimulation in cases of attempted Suicide.—With reference to a case in point, Mr. Marshall said that the medical part of the treatment of cases of injury self-inflicted with suicidal intention, consists mainly in the administration of stimulants; because, though these patients may not necessarily have suffered a more or less prolonged period of exhausting mental distress previous to the attempt, or subsequently, the loss of a large quantity of blood, they have almost always been governed at the moment by feelings of acute intensity, which are necessarily followed by a proportionate state of nervous depression, often aggravated by the shame they feel in the presence of their attendants and fellow-patients.

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LONDON HOSPITAL.

OPERATIONS.

On the 19th October the following operations were performed at this hospital.

(By Mr. James Adams.)

Removal of an Epithelioma of the Tongue with Electric Apparatus.—This growth was situated on the side of the tongue, and presented a surface of about the size of a small almond. The tongue being held forwards by means of a thread passed through the tip, a wire was passed through the organ a little behind and to the inner side of the base of the growth, and connected by its extremities with the battery. The wire was then drawn first forwards and then outwards, so that the part containing the growth remained attached only by a small isthmus posteriorly; the operation was completed by dividing this with the noose of a galvanic écraseur. No loss of blood occurred throughout the operation, except that due to the introduction of the thread and the wire.

(By Mr. Couper.)

Operation for the release of a Strangulated Inguinal Hernia.—The patient was a man of about middle age. The hernia had been strangulated since the morning, with the development of no other symptom than vomiting. An endeavor (made under chloroform at the time of admission) to reduce it by taxis had failed. The attempt was renewed on the table, but not persevered in lest violence should be done to the parts. Mr. Couper then proceeded to expose the sac and incise both the internal and the external rings, after which the hernia was returned. A point of some interest in connexion with this case was that the hernia appeared to be complicated with undescended testis, until, after its reduction, a small atrophied gland was discovered in the scrotum; the other gland, though rather larger, was unusually small. Mr. Couper thought that the early stage at which the operation had been performed gave the patient a good chance of recovery, but feared that he would afterwards experience some difficulty in confining the gut to the abdomen, on account of the size of the inguinal aperture.

(By Mr. Maunder.)

Excision of a Carcinomatous Mammary Gland.—Mr. Maunder said that those who are commencing their studies would perhaps be surprised to learn that the diagnosis of tumours was a task of very considerable difficulty, so much so that not unfrequently even accomplished surgeons were found to hold different and opposite opinions as to the nature of a particular tumour. The case before them, however, admitted of little doubt, notwithstanding that the growth itself was exceedingly small. They would observe that, though it was freely movable on the pectoral muscle, the skin over its site was adherent and puckered, and presented a small scab; there were in addition one large and some smaller lumps in the corresponding axilla. With regard to the history of the tumour, the patient had only been aware of its existence since six months, and during this time it had been, night and day, without any special attack of inflammation, the centre of severe darting pain; she had also during this period undergone a considerable loss of flesh. These circumstances, and its own physical characters, Mr. Maunder said, indicated that the growth was a cancer of the hard variety, notwithstanding the absence of cachexia, and the comparative youth of the patient, who was only thirty-eight years of age. Two incisions, extending obliquely downwards and forwards from the upper boundary of the anterior margin of the axilla, to a point about two inches below and a quarter of an inch to the inner side of the nipple, were so directed as to include an elliptical piece of skin from two to three inches broad at the widest part, and contain the part involved by the cancer; both incisions passed to the outer side of the nipple. The mammary gland having been removed, Mr. Maunder extracted with the fingers one large and two smaller affected lymphatic glands from the axilla, exposing by this proceeding about one inch of the course of the axillary vein.

In remarking on the operation, Mr. Maunder said that although the cancer was a small one, the extent to which it had already involved the neighboring glands bore testimony to the propriety of immediate interference. One of these lymphatics had been completely infiltrated, and was undergoing fatty degeneration in the centre. He drew particular attention to the perfect safety with which, by laying aside the knife, and making use of his fingers, he had been able to remove glands from the immediate neighborhood of the axillary vein and numerous other vessels of considerable magnitude. He also advised that, in operations about the breast, the nipple should, if possible, always be saved.

CASES UNDER THE CARE OF MR. COUPER.

After the operations, Mr. Couper showed us, among others, the following cases at present under his care:—

A Case of Skin-grafting on an Ulcer of twenty-four years' standing.—This ulcer was on the leg of a man who is now sixty-six years of age. For several weeks before the operation of grafting was performed, he had been confined to his bed while under treatment for stricture of the urethra; but, though he was thus placed under comparatively favorable circumstances, the ulcer showed no disposition to heal. Portions of skin were transplanted on Sept. 21st, Oct. 1st and 15th. The first were almost indistinguishable for about a fortnight, and then began to grow rapidly. The delay was shorter in the second instance. The third crop were, at the time of our visit, scarcely distinguishable. Mr. Couper said that no sooner had the grafted centres commenced to grow than the ulcer was observed to heal very appreciably from the circumference, a circumstance which was the more remarkable that the patient was at the time under precisely the same conditions of rest and diet as he had been for several weeks previously. Mr. Couper, however, was not prepared to consider it more than a remarkable coincidence.

With regard to the question of the permanence or temporary disappearance of the grafted portions of skin, on which the evidence hitherto published in these columns has appeared to be somewhat contradictory, it is to be observed that, though in the above instances they are said to have been permanent, for some days they could only be discovered with difficulty. The portions transplanted on the 15th October appeared to us to be readily discoverable only to those who knew beforehand where to look for them, and the only indication of their presence was an almost inappreciable difference of tint presented by the granulations in particular spots. It is not difficult to understand how similar conditions in other cases may have tended to produce a discrepancy which is more a difference of terms than of facts.

A Case of Primary Syphilitic Ulcer of the Lip.—This ulcer, situated on the upper lip of a young woman, a little to the right of the mesial line, presented exactly the same general characters as the ulcer of the tongue which we noticed under the date of the 15th October, as being under the care of Mr. Paget, as St. Bartholomew's—viz., a flat, oval, ulcerating surface, and a distinctly indurated base; the only difference being that, in consequence of its situation, the surface of the ulcer was less moist and rather darker in color in this instance. The submaxillary glands of the corresponding side were enlarged.

Very careful inquiries had been made as to the history of the patient, both from herself and her friends; and all the circumstances of the case seemed decidedly opposed to the theory that inoculation had been produced by the direct means which suggested itself at first sight. Without, however, implicitly accepting the more favorable view of this particular case, or being in any way influenced by it, Mr. Couper believes, with some high authorities, that a primary sore may be contracted by contact with the essentially moist surface of any form of so-called secondary eruption. Remarking on the case at St. Bartholomew's, Mr. Paget expressed the contrary opinion—namely, that a primary hard sore can only be communicated by the contagion of another sore of the primary class. It is noteworthy, also, that it appears to be the experience of several observers, that primary syphilitic sores occur, as in this instance, much more frequently on the upper than on the lower lip.

WEST LONDON HOSPITAL.

A CASE OF BRONCHITIS, SPASM OF THE LARYNX, AND DEATH FROM PLUGGING OF THE PULMONARY ARTERY, AFTER SYPHILIS.

(Under the care of Dr. SIMMS.)

THE notes of the following case have been communicated by Mr. Barker, the house-surgeon:—

F. H——, aged thirty-three, was admitted on May 10th, after having attended as an out-patient for a short time, with symptoms of bronchitis, emphysema, and feeble heart. He was a brick layer's laborer, who had had syphilis several times, on one occasion with a bubo, which was lanced. Since then he had suffered at times from "rheumatic" pains in the limbs, and headache at night.

On the day of admission he was found, after a walk of several miles to the hospital, in a state of great exhaustion with dyspnœa. He was taken in, and given some brandy, which afforded relief.

On examination, there was comparative dulness on percussion for about a hand's breadth under right clavicle; the rest of the chest was unnaturally clear, the lung overlapping the heart, and hiding its position and size, both of which conditions were natural as far as could be judged under the circumstances. On auscultation, the sounds of bronchitis were so prominent as to obscure all others. He was very feverish, and unable to lie down flat. The cough and spitting were incessant, the latter not free. He had no sore-throat, and could swallow perfectly well. There was no tenderness about the trachea. He pointed to the first bone of the sternum as the seat of his distress, and expressed a want to bring something away from that point. The pupils were equal. He had never had, nor had at the time, any pain in left arm; but the voice was weak and suppressed, and there was some stridor in breathing. The pulse was 88. He was ordered salines, with large doses of ipecacuanha wine and ether, and some whisky and turpentine for local application.

May 11th.—Condition the same; no vomiting or nausea.

12th.—Bringing up some lumps of viscid and tenacious mucus has caused some relief; he still wheezes, but the heart's sounds can now be heard; they are natural. Ordered ammonia, ether, squills, and ipecacuanha.

13th.—Improved; at the apices of both lungs the breathing is clear, there being no perceptible difference between the entry and exit of air on both sides, though expiration is sometimes slightly prolonged on the left side at the area of dulness; the expectoration greenish and lumpy. At this period the history of syphilis was made out, and ten grains of iodide of potassium were added to his mixture.

14th.—Slept better, but is in other respects not so well; has slight diarrhœa; pulse 100.

15th.—Not so well, having slept badly; diarrhœa has ceased; some streaks of blood in expectoration; does not wheeze so much; no signs of pneumonia.

16th.—Pulse 80; tongue cleaner; having vomited some phlegm, has felt much relieved; sputa free from blood.

17th.—Decided improvement in voice; pulse 84; has slept badly; feels very uneasy, and says he is not so well; belladonna liniment to chest. At 10 P.M., the house-surgeon found the patient laboring with a severe attack of dyspnœa; with a livid face; a pulse hardly perceptible; breath stridulous and noisy, and inability to speak; the eyeballs prominent and staring. Inhalations of chloroform were tried without effect; large doses of ether were given, and then, as a last resource, laryngotomy was performed with speedy relief. The urgent symptoms passed away, mucus was brought up, and the patient, having taken some brandy, expressed himself quite relieved. During the night, however, there were two attacks of dyspnœa, less severe, but of a like character. Takes nourishment freely.

18th.—Pulse 116. Has had no sleep; breathes more easily, and takes plenty of food; expectorates freely. Had another severe attack of dyspnœa, of a character similar to the former, which passed off at midnight, the pulse being then 120. Takes eight ounces of brandy and other nourishment.

19th.—Another attack of dyspnœa, but a less severe one. The expectoration is now free; phlegm slightly puriform and bloody, probably from the secretions of the wound. Pulse 130. There being no symptoms of iodism, fifteen grains of iodide of potassium were added to the mixture. The patient was also ordered to inhale a mixture of chloroform, alcohol, and ether, when in distress with dyspnœa.

20th.—Has slept for two hours. Pulse varies from 120 to 102. The signs of bronchitis are disappearing steadily.

21st.—Not so well. Some erysipelatous inflammation around the wound. To take bark with bromide and iodide of potassium, of each twenty grains, and ether.

22nd.—Less erysipelas; four hours' sleep; expectoration free; pulse 112.

23rd.—An attack of dyspnœa of twenty minutes, duration.

24th.—Appears better, but is much exhausted.

26th.—The bronchitis much relieved; the erysipelas subsiding; but exhaustion increasing after each attack of dyspnœa.—At 9.30 P.M. on this day the patient died, after a very severe attack of dyspnœa ending in unconsciousness.

Report of Post-mortem Examination.—The body was fairly nourished, and bore evidences of old syphilis. On opening the chest the lungs did not collapse. In the trachea and bronchi was a considerable quantity of muco-purulent matter. Some pleuritic adhesions of recent formation on right side, and others of old date on left. The lungs were congested, and showed evidences of bronchitis; all parts floated in water, including the upper part of the left lung, which appeared thicker and slightly more dense than other portions. The wound in the larynx was healthy; the only morbid sign about the larynx itself was some roughness and irregularity of its mucous membrane. The trachea was thickened and reddened, as from chronic congestion of long standing, in patches, from which the mucous membrane was removed just as if the surface had been scraped with a blunt knife; there was, in fact, the beginning of superficial ulceration. The bronchi were so tough as to resist the knife, and were much thickened. They presented appearances similar to the trachea, though less marked; they contained muco-purulent fluid. The walls of the heart were thin, flabby, and fat; the valves were healthy with one exception; the large vessels were healthy; and clots were found in the aorta and in the left ventricle, which were of recent origin, and not organised. Extending from the right ventricle to a considerable distance up the pulmonary artery was a pale, semi-organised, fibrinous clot, so firmly adherent to the tricuspid valve that, when torn from it, a portion was left behind; it was also adherent to the walls of the ventricle, of which it occupied about one-third of the area. The other organs were all healthy.

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ST. GEORGE'S HOSPITAL.

THE OPERATION OF SKIN-TRANSPLANTATION; CLINICAL REMARKS.

By Mr. POLLOCK.

ON the 3rd November we were present while Mr. Pollock performed the operation of skin-transplantation which he has introduced into this country. He pointed out that the sore on which he was about to operate, which was a rupial ulcer, presented a feature which was, in his experience, frequently to be observed in ulcers of that nature, and possessed a special interest in connexion with the question of skin-grafting—namely, a number of central points of cicatrisation precisely similar in their character to those obtained by operation. When first seen, the skin is to all appearance completely destroyed from the surface of these ulcers; but after a time centres of skin-growth not unfrequently make their appearance, and by their subsequent increase contribute largely to the repair of the ulcer. In the present instance three such centres had appeared spontaneously: one of them had coalesced with the margin, the remaining two with each other in the centre. About twelve portions of skin were taken from the front of the forearm with dressing forceps and scissors, and placed in three horizontal rows on the ulcer, each row being held in position by a separate piece of strapping. They were oat-shaped, from two to three lines in length, and involved the entire depth of the skin; their removal exposing, in some instances, the fascia of the forearm.

After the operation, Mr. Pollock showed to a number of visitors some of the cases under his care in the wards, among them the patient on whom he first adopted the practice. As will be remembered, this was a child who presented in May last a wound of two years' standing, caused by a burn, involving the lateral aspect of the buttock, the whole of the same aspect of the thigh, and the outside of the knee down to the situation of the head of the fibula. This large surface, which, under the most favorable circumstances, would not, in Mr. Pollock's opinion, have otherwise healed for many years, and had, indeed, come to be looked on as almost beyond the possibility of repair, is now all but completely covered with new skin, although, during the first few months of the new treatment, the transplantations were few in number, and made under all the disadvantages of a first experiment.

It is much to be regretted that the piece of negro-skin, which attracted so much attention a short time past, when the humaneness of the operation was called in question, was swept away about a fortnight ago by some phagedænic sloughing which attacked the part of the cicatrix in which it was situated.

In connexion with this case, Mr. Pollock said that in cases of burns the transplantation should be effected as soon as the granulations assume a healthy appearance. In the course of two or three days the layer of superficial epithelium which has nearly fulfilled its function, and would, in the ordinary course, soon have been shed, is frequently cast off; in a few days more, beneath the surface thus laid bare, the layer of living cells, a network of vessels can be seen by the aid of a two-inch glass, and shortly afterwards a pale film begins to spread from the circumference. In the course of a few weeks after the first appearance of the film, the new skin becomes endowed with sensation. In that which was propagated from the skin of the negro, pigment began to be developed at about the same date, as shown by the spread of a change of color in a gradually increasing surface of crescentic form. Mr. Pollock believes the whole process to be one of simple cell-growth.

The practical gain of the operation is, he said, that by its aid large surfaces can be made to heal in an incomparably shorter space of time than they otherwise would, and that they do so almost independently, and with the least possible contraction, of the marginal cicatrix. And thus, even if the skin contributed by the transplanted centres prove to be no more endowed with yellow elastic fibres than is a cicatrix which has grown solely from the margin, and should undergo some subsequent contraction, that proportion of distortion which inevitably follows from marginal contraction is almost entirely avoided.

Mr. Pollock added that he was not aware whether the new skin in these cases is endowed with sweat-glands, and insisted that a healthy condition of the granulating surface is essential to the success, of the operation, confirming the observation by the case of a child with a large, unhealthy granulating surface, resulting from a burn in the chest, into which a number of pieces of skin were grafted about two months ago, which up to the present time have remained as pale, semi-transparent spots, without the least marginal increase.

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Provincial Hospital Reports.

LEEDS GENERAL INFIRMARY.

CASES OF INTRA-CRANIAL DISEASE; WITH OPHTHALMOSCOPIC OBSERVATIONS.

(Under the care of Dr. Clifford Allbutt.)

There are now, or lately were, in Dr. Allbutt's wards, three cases of encephalic disease, all of which were attended with secondary changes in the eye, and which well illustrated the manner in which such changes are brought about. The three cases were instances of encephalic tumour—of tumour presumed, indeed, in two cases, but with little likelihood of error, and in the third case actually discovered post mortem. In all three there was serious defect of vision; in one, in which blindness was nearly complete, no ophthalmoscopic examination could be made.

The first case was supposed to be an example of cerebellar tumour. The patient had suffered for two years from gradually increasing attacks of headache and vomiting. These attacks were now of intense severity; they recurred every two or three days in terrible paroxysms of headache, chiefly occipital, and were attended with vomiting. Though almost beside herself with pain during the paroxysms, the patient was quite rational during the intervals. Latterly her sight had failed so far that she could do little more than distinguish the features of those about her. There was no other symptom, save a certain loss of motor capacity. Dr. Allbutt said that there was no symptom distinctly belonging to cerebellar disease, unless it were a loss, not exactly of power of motion in the legs, but of capacity of motion. Such patients could walk, but had no reserve of walking power. Seen with the ophthalmoscope, the eyes presented that condition called by Von Graefe "stauungs papille." Dr. Allbutt has called this "Ischæmia papillæ," or, in English, the "choked disc." It consists in arrest of the venous ebb from the intra-ocular part of the optic nerve, with increase of connective elements due to prolonged congestion. It is a common concomitant of cerebellar tumour, which compresses the venæ Galeni, causes thus dropsy of the ventricles, and so indirectly a hindrance to venous reflux from the eye.

The second case was that of a woman who entered the house presenting the history and symptoms of a small tumour of the right hemisphere. There was mental palsy from the first, with slight left hemiplegia creeping on shortly before death. Vision was much lost, and optic neuritis was found. Dr. Allbutt pointed out the distinction between optic neuritis, which takes origin in an inflammation of the sheath and trabecular tissue of the optic nerve, and descends from beyond the eye, and the choking of the disc, which has its origin in stoppage of the veins. Optic neuritis means meningitis, while the choked disc means pressure; and a diagnosis was therefore made of a small tumour in the right hemisphere, and probably a superficial tumour in the anterior lobe, because any concurrent meningitis would, in this case, be near the optic nerves. At the autopsy several small gliomata, varying from the size of a hempseed to that of a marble, were found. The small ones were clustered like tubercular masses, for which they were at first mistaken. There was meningitis spreading down along the base from the most superficial part of the mischief, and involving the optic nerve.

The third case was presumed to be one of tumour of the right middle lobe, involving the central ganglia. Tumours in this region, however, do not generally involve the optic nerves, unless they are of large size. The woman went out of the hospital before death.

Among the out-patients, Dr. Allbutt has often drawn attention to two other cases: one of paralysis agitans, and the other of disseminate sclerosis. In the former, a man of about forty-seven years of age, shaking palsy began in the right side about eighteen months ago, but soon invaded the left side also. At present the right side is in continual and evident tremor, more so when at rest, and less so during voluntary effort. The left side is much less severely affected. No cause can be ascertained, the man being temperate, and otherwise apparently of sound constitution. This disease is not generally attended with perturbation of the optic nerves, and the discs of the patient were shown to be healthy. Such, however, is not the case with G. A——, a patient who has been in attendance for about two years, and who has served as a standing example to the students of disseminate sclerosis, or "sclerose en plaques." Sclerosis of the optic nerve, or "white atrophy," is a frequent symptom or concomitant of sclerosis elsewhere in the encephalon, and in G. A—— it was an early indication of the mischief to come. Before the other nervous symptoms fully developed themselves, the atrophy set in, and for its relief he sought the aid of several opthalmic surgeons, by whom no doubt the case was recorded as independent amaurosis, or as "tobacco amaurosis." At this time, however, the symptoms of sclerosis of the centres were insidiously creeping on, and are now being evident in the waning power over his limbs, the legs especially, and in the tremor called forth by every attempt at voluntary movement, the limbs at other times being at rest. There is also nystagmus.

Two very interesting cases of ptosis have likewise attended of late. In one, a boy of about ten, there is paralysis of the third nerve throughout, and both eyes are affected. The optic nerves are also in the second stage of atrophy, and the whole is a result of meningitis following severe enteric fever. The second case occurred as follows, in a very intelligent little girl twelve years of age. Nine days before admission she "turned dizzy" for a few seconds, and on recovering herself the left eyelid had fallen. On admission there was complete ptosis of this eyelid, but no mydriasis, nor any squint. All other parts were normal, and the general health was good. On presenting herself the following week she said that the day after the former attendance she was seized with a sharp pain in the left temple, and the eyelid rose. On inspection, the levator and orbicularis were perfectly normal, and the girl was only detained on the books for the sake of a few weeks' watching. She was a simple, quiet, truthful child, wholly devoid of deceit or of morbid fancy. Had electricity been used on the first visit, as Dr. Allbutt had intended, that means would have been praised for virtues not its own. The former case, the little boy, has been discharged incurable: there was no response to faradism in the affected muscles.

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DRIFFIELD COTTAGE HOSPITAL.

CASE OF CHOREA TREATED WITH HYDRATE OF CHLORAL; RECOVERY.

(Under the care of Dr. Britton.)

Rose S——aged nine years, came under Dr. Britton's care as a private patient on Jan. 24th of the present year. She had begun to show symptoms of chorea in the preceding November, which had become gradually worse. When she came under treatment she could neither articulate any words, nor sit still in a chair, nor walk. If left alone she fell out of her chair. She could not eat, so great was the difficulty in swallowing.

The first treatment, consisting of quinine and iron with generous spoon diet, was followed by no improvement.

On the 5th February she was placed on sulphate of zinc in two-grain doses, which were gradually increased to nine grains, three times a day. But as she bore this very badly, often being sick after taking the medicine, she was ordered strychnine and iron; and under this she slightly improved in swallowing, but not in walking or talking.

On the 5th of March, in consequence of her parents being unable to provide a sufficiently good diet, she was admitted into the Driffield Cottage Hospital, where Dr. Britton commenced giving bromide of potassium with digitalis. No improvement following, the strychnine and iron was resumed; but without any apparent effect. She disturbed the patients much at nights by screaming in her sleep, or on suddenly awaking. She was therefore ordered ten grains of hydrate of chloral at bedtime, which procured her a good night's rest, followed by a marked improvement during the day.

This treatment was continued for four nights; and on the 14th of April she was discharged perfectly well. She was last seen on Oct. 6th, up to which time she had remained quite well.

Medical Societies.

JANUARY—FEBRUARY.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Dr. Burrows, F.R.S., President, in the Chair.

ON THE ELECTROLYTIC TREATMENT OF HYDATID TUMOURS OF THE LIVER.

BY C. HILTON FAGGE, M.D., F.R.C.P.,

Assistant-Surgeon to Guy's Hospital, and Physician to the Evelina Hospital for Sick Children;

and

ARTHUR E. DURHAM, F.R.S.,

Assistant-Surgeon to, and Lecturer on Anatomy at, Guy's Hospital.

This paper is based upon eight cases of hydatid disease of the liver successfully treated by electrolysis. The authors believe that this method of treatment has not hitherto been adopted in any other case of the same nature in the human subject.

The operation was performed in the manner recommended by Dr. Althaus in his treatise "On the Electrolytic Treatment of Tumours." In each case two needles were passed into the tumour, and were connected with the negative pole of a modified Daniell's battery of ten cells. The positive pole, terminating in a moistened sponge, was placed upon the surface of the abdomen. The current was allowed to pass for a period varying from ten to twenty minutes, in different cases. The needles were then withdrawn. A little clear fluid in some cases appeared at the seat of the punctures.

No preliminary tapping nor exploratory puncture was made in any case. The diagnosis rested on the facts that the patient had a rounded, elastic tumour projecting from the liver, and that this was *cystic*, as proved by the needles rubbing freely against one another in its interior, although introduced an inch or two apart.

The operation was followed in most cases by rapid diminution of the tumour, which even shortly after the operation became soft and flaccid. At the same time, in some cases, fluctuation became perceptible in the lower part of the abdomen. The authors believe that some of the hydatid fluid probably escaped through the punctures made by the needles, having been possibly forced out by the accumulation of hydrogen gas in the interior of the cyst. The success of the operation would thus appear to depend, not on the direct action of the electric current, but on its effecting, as it were, a kind of subcutaneous tapping; and they suggest that simple acupuncture might possibly be followed by equally successful results.

Slight febrile symptoms, and more or less pain, in most cases followed the operation; these symptoms, however, rarely lasted more than three or four days. In one instance they were entirely absent. In most cases the patients were able to get about in a few days, and some of them were discharged from the hospital at the end of two or three weeks. Even at this early period the tumour had already, in some cases, very manifestly decreased in size; and, as a rule, this decrease, when once it had fairly commenced, steadily progressed. After the lapse of six months or a year, when each patient returned for examination, no trace of the disease remained; or, at most, there was only some ill-defined fulness of the epigastrium.

In one case only the result still remained doubtful. In the remaining seven cases the favorable issue above described had already taken place. All the patients were in perfect health. In each of them the tumour had been large, and in at least one instance it had reached quite unusual dimensions. In three cases more than one cyst existed, and each cyst had then to be electrolysed separately. In the latter part of the paper the results of electrolysis are compared with those of simple tapping—the operation which has hitherto been most successful in the cure of hydatid disease of the liver. The authors claim for electrolysis that it rivals simple tapping in being unattended by immediate danger to the life of the patient, and that it is to be preferred, inasmuch as (according to their experience up to the present time) it involves no danger of suppuration within the cyst, and consequent risk and suffering—results which often follow simple tapping. The authors conclude their communication by referring to a case in which Dr. Playfair, in accordance with their suggestion, treated an hydatid tumour of the liver by simple acupuncture. The results of this case promised to be favorable; but as yet sufficient time had not elapsed to warrant any decided expression of opinion.

Dr. Robert Lee had met a case four years ago. The patient, a lady from Calcutta, had an abdominal swelling which was said to be ovarian, and she was sent home for operation. By chance she consulted him, and he diagnosed pregnancy. Another, however, diagnosed hydatid tumour of the liver, and recommended puncture. The case went on, and she was delivered; but a tumour was left behind which was still pronounced to be ovarian. Puncture caused it to shrink, and it did not recur.

Mr. Hulke said that years ago Dr. Budd had tapped a hydatid cyst, but only a few drops of fluid came away. Some years after the woman died in childbirth, and a shrunken cyst was discovered.

Mr. Barwell asked why two needles were employed, and why they were connected with the negative pole.

Dr. Althaus was glad to find that his suggestion had turned out well, as the treatment by tapping had not been very successful. If electricity was not required, it was good that acupuncture should be employed. Two needles were employed to extend the disengaging surface, and the negative pole was used as developing hydrogen, not oxygen.

Dr. Murchison said it would seem that fluid had escaped from the cyst, and yet no bad action had been set up. Was it advisable to allow the fluid to percolate into the peritoneum, or to allow it to escape? Suppuration generally followed secondary enlargement after tapping. This enlargement generally subsided of itself. The entry of air into the cyst depended on the care taken in tapping, and the use of the aspirator would prevent its entrance.

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MEDICAL SOCIETY OF LONDON.

Mr. Gay, President, in the Chair.

Dr. Andrew Clark read the paper of the evening, "On Local Inflammations, in certain defined conditions, as Causes of Pulmonary Phthisis." He said that hitherto his illustrations had been drawn from cases of pneumonia and pleurisy, and as yet he had found no exception to the laws he had set forth as regulating these relations to phthisis. In the present paper he purposed to take his examples from cases of chronic bronchitis, which, though a less common, was an equally efficient agent in bringing about phthisical destruction of the lung. Particulars of four cases were then given. In concluding his paper, Dr. Clark said that the chief causes of the phthisical complication in cases of chronic bronchitis appear to be repeated colds, over-feeding, and the abuse of stimulants. Loss of strength, feverishness, afterwards subsiding, and coarse moist crepitations, were signs of the phthisical condition. When the bronchi ulcerate, fibres of lung-tissue are found in the sputa. Fibroid or tubercular pneumonic changes in the lung follow, but the progress of the disease is usually slow. By meeting feverish complications with rest, milk diet, and salines, and by the use of inhalations of iodine, creasote, or carbolic acid, and appropriate treatment by tonics and diet, the progress of the disease may be greatly retarded, and life indefinitely prolonged.

Dr. Thorowgood said that, in going over some of the in-patient records of the Victoria-park Hospital, he had noticed a large number of the cases of phthisis to have had their origin in a catarrh or in bronchitis, at some more or less distant date antecedently. This bronchitis was probably inefficiently treated, while doubtless alcoholic drinks were freely taken by the patient, till breaking down of lung obliged him to become an in-patient of the hospital.

Dr. Hare said we must not rush too hastily to the conclusion that the disease was of catarrhal origin. Hospital patients usually referred all their ailments to cold caught. Dr. Hare could not agree with Dr. Clark that a pneumonic deposit unabsorbed at the end of three months would never go. He had observed one case of pneumonia where the consolidation persisted for two years, and then went quite away. He insisted much on the value of counter-irritation as a curative measure.

Dr. Clark, in reply, said he must admit Dr. Hare's case of pneumonia as an exception to the rule he had propounded. He quite agreed with Dr. Hare as to the value of counter-irritation. He did not include cases of acute phthisis in young children as sequelæ of bronchitis. He had no reason to think there was any mechanical obstruction of circulation likely to cause such hæmorrhagic destruction of lung as he had himself described in his lectures before the College of Physicians in 1866.

Dr. Tilbury Fox read a paper on the character of Chronicity impressed on certain Skin Diseases by their occurrence in persons who were the subjects of Constitutional Syphilis. He related a case of chronic eczema bearing upon the point; and urged that whenever a skin disease was of unusual duration, or especially rebellious to treatment, a syphilitic taint should be suspected, and the truth of the suspicion tested by the use of anti-syphilitic remedies.

Dr. B. W. Richardson then read a lengthy and elaborate paper "On the Medical Aspects of the Germ Theory." Without entering at all upon the consideration of the origin of life, his object was to consider how far the germ theory of disease is in accord with known facts, and how far it affords explanations of them. Viewed in either aspect, he pronounced it to be untenable, and advocated in its place a physical doctrine of organic poisons, as opposed to germs, poisons capable of being introduced into the body from without, or of being generated in its own secretions, under the influence of certain definite but unknown conditions. This theory holds that the organic poisons may be colloidal, and may be transmitted as solid particles, on solid substances, or in water, or by air; that they are as destructible as other dead organic matter, and that their action upon the body is purely physical. At the close of the paper Dr. Richardson announced that he had its leading propositions printed in pamphlet form for distribution among the members of the Society. Dr. Richardson's paper was heard with great attention, and was followed by much applause.

Mr. Henry Smith made some observations on the excellent results he had obtained from Puncture as a means of giving relief to an Inflamed Testicle. The plan had served him well in about 500 cases. The relief obtained was immediate and permanent, and he believed arose from division to a small extent of the tense and unyielding tunica albuginea. The small amount of blood lost had nothing to do with it.

Mr. Adams suggested that subcutaneous incision would show if the success were due to the mere relief of tension.

Mr. Wickham Barnes had been consulted by a patient in consequence of the severe irritation that had followed the puncturing of the testis.

Mr. Royes Bell had seen a jet of serum spurt out in puncturing an acutely painful testis, with instant relief.

The paper of the evening was by Dr. Sansom, "On Putrefaction, Fermentation, and Infection." He maintained—1. That putrefaction and fermentation are each due to the influence of living, growing, and multiplying material. (*a*) Fermentation is the result of the vital acts of particles of vegetable protoplasm in an organic fluid of uniform composition, the particles assuming distinct morphological forms according to the nature of the fluid. (*b*) Putrefaction is due to like influences exerted upon organic matter of a more complex or a mixed kind. 2. The atmosphere contains minute spores, ova, and particles of protoplasm, which it wafts from place to place. These are, for the most part, perfectly harmless. 3. The diseases of infection are due to minute particles of living protoplasm, which are transmitted by physical intermedia; are capable of reproduction within the recipient organism, and are excreted in vastly increased numbers. 4. Infecting molecules present the complex reactions of living beings, and though they resist certain physical influences, they are destructible by others. Slight chemical or physical disturbances may destroy them. 5. Fermentation and infection are alike due to living molecules; but though it is possible that in some cases (cholera, typhoid,) the molecules of fermentation in complex conditions can induce infection, it is far from proved that all the diseases of infection are due to the organisms of fermentation.

Dr. Richardson complimented Dr. Sansom on making as good a defence as was possible of his various points. The germ theorists were reducing the germ further and further as their microscopes improved, and what they would eventually descend to as a real germ, no one could yet say.

PATHOLOGICAL SOCIETY OF LONDON.

Dr. QUAIN, President in the chair.

THE first communication was one by Mr. Spencer Watson, who exhibited a specimen of Glioma of the Eyeball in a child three years and a half old, which had secondarily involved the bones of the face and scalp, and had terminated fatally about a year after the disease had been first recognised by the ophthalmoscope. There was not, up to the last, any impairment of the mental faculties, with the exception of occasional delirium at night. A microscopic examination of the growth within the eyeball, and of the optic nerve, demonstrated a glioma which had in parts undergone fatty and earthy change. The deposit in the scalp had more fibrous elements in it. The orbit of the side opposite the eye primarily affected was also the seat of a deposit which had thrust the eyeball nearly out of the socket.

Mr. Christopher Heath exhibited a specimen of Aneurism of the Aorta from a man aged forty-five, admitted into University College Hospital with a large thoracic tumour some months before. There was much congestion of the right side of the neck, and flattening out of the clavicle, produced by a pulsating tumour of doubtful seat, but probably in the innominate artery. The left pulse was hardly perceptible; there was dyspnœa, but no dysphagia. It seemed to Mr. Heath of small importance whether the seat was in the innominate or aorta, with regard to operation. Mr. Heath determined to tie the left subclavian and the carotid; but on attempting to carry out his intention he failed to find the former vessel, or any of the usual guides to its situation, but came upon a pulsating sac, and the operation was abandoned. The patient went on well for two or three days, when hæmorrhage occurred, and he did not rally, and died on the sixth day afterwards. The post-mortem disclosed a large sacculated aneurism of the aorta, involving the innominate, and overlapping the site of the subclavian, which was completely obliterated.

Dr. Peacock exhibited two specimens of Diseased Heart, the first from a child who was cyanotic, and was between two and three years of age. The pulmonary artery was obliterated, the foramen ovale was closed, and the circulation was carried on through the ductus arteriosus. The second was removed from a cyanotic boy aged seventeen. There was in the specimen contraction of the pulmonary artery, and closure of the foramen ovale. Dr. Peacock believed the malformation originated in premature obliteration of the ductus arteriosus. There were two subsidiary aortic branches obliterated at their origin.

Dr. Fagge showed a specimen of Embolism of the Middle Cerebral Artery, of six weeks' duration, taken from a woman aged twenty-six, admitted into Guy's Hospital on September 5th. On the day of admission she gave a cry, and suddenly became insensible, being paralysed on the right side. Next day she became conscious, but could never be got to say more than "Yes" or "No" subsequently. She sank into a drowsy condition, and died violently delirious. A loud systolic murmur was heard over the heart, and the liver was enlarged. The brain post mortem showed its left apex atropied and softened, and an embolus was found in the middle cerebral artery. There was embolism in the kidneys and spleen, and numerous vegetations on the valves of the heart.

Dr. Moxon exhibited what he thought to be Phlegmonous Gastritis, there being two abscesses in the submucous tissue not accounted for on the supposition of an idiopathic pyæmia. The patient, a man aged twenty-seven, was admitted into hospital with semi-febrile symptoms of a fortnight's duration; he was jaundiced, had pain in the side, rusty sputa, and rigors with much tympanitis. At the post-mortem, there were found, in addition to the abscesses in the stomach walls, suppuration of the rectum, and pus about the portal veins and the pancreas.

Dr. Moxon brought forward a specimen showing the colon, especially towards its termination, and the stomach in a state of follicular inflammation, and he asked, after remarking on the habit of the patient, if it might not be the condition associated with so-called "gout in the stomach."

Dr. Moxon likewise exhibited a specimen of Acute Splenitis, in which certain cells, like pus-cells, were freely found in connexion with engorgement and softening of the general texture.

Mr. Nunn exhibited a specimen of Fibrous Tumour, growing from the internal surface of the Uterus in connexion with atrophy of the uterine walls, but without change in the cervix. It was taken from a woman killed accidentally. Mr. Nunn thought that had she lived the fundus and body of the uterus would have disappeared, and the tumour would have been set free into the abdominal cavity. He also argued for the pathological independence of the cervix and body of the uterus.

Mr. Mason showed a congenital Tumour of a warty nature, removed from a young woman's abdominal wall, in consequence of the fetor which was occasioned by the secretion it gave out.

Dr. Hilton Fagge exhibited the Liver and a portion of Skin from the sclerodermic patient, aged sixty-seven, whom he had presented to the Society a year ago. On section, the skin was found to be thickened and considerably indurated, but not to such an extent as he had expected. There appeared to be hypertrophy of the fibrous elements of the derma, with thinning of the cuticle in some places and thickening in others. The elastic tissue was much in excess of the normal amount. The skin was much tougher than is usual, and hardened, owing to change in the fibro-cellular tissue, probably due to some chemical change. No other internal organ was diseased

Mr. Arnott exhibited a Cancerous Testicle, covered by a much thickened tunica vaginalis, the disease having been apparently started by a blow. The testicle had never fairly descended into the scrotum. In removing the testicle the peritoneum was opened, but without any serious consequence. Owing to the position of the testicle, some little difficulty was offered to a correct diagnosis.

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CLINICAL SOCIETY OF LONDON.

Mr. Paget, President, in the Chair.

Dr. Sutton read particulars of two cases of Acute Scurvy, which were fatal, the one in twenty-eight, the other in fourteen days, and which had both originated in this country. Both patients were females, and in each instance vaginal hæmorrhage ushered in the disease. One, aged twenty, had tramped from the North, and been much exposed to cold and fatigue. Three weeks before admission into the London Hospital she had suffered from pain in the back and febrile symptoms, which were followed by a condition of the throat which suggested diphtheria, except that the grey-looking membrane in the tonsils when peeled off was not renewed. The gums then became swollen, bleeding and sloughing, the bowels much relapsed, and death took place by collapse. At the autopsy sanguineous extravasations were found in the pleura, pericardium, kidney, stomach, and intestines, beneath the pia mater, and in the mucous membrane of the cheek. The second case was thirty-two years of age, and had lived at Bromley. Her illness had commenced fourteen days before admission with pain in the abdomen, and loss of appetite, headache, nausea, and thirst, followed by swelling of face and sanguineous spots in the skin over the chest and extremities. At the autopsy the gums were found sloughing; there were extravasations of blood in various parts of the body, and very characteristic scorbutic ulcers of the large intestine. Unfortunately it had been impossible to ascertain the diet upon which the patients had been living.

Mr. Harry Leach desired to know particulars as to the plan of treatment pursued in both cases. In a somewhat extended experience of scurvy on board the *Dreadnought* Hospital-ship he had failed to discover albumen in the urine, and would therefore suggest whether the first case cited (having regard to the fact that albumen was present, and that the kidneys were abnormally large) could be fairly classed as one of scurvy, pure and simple. It was a matter of regret that Dr. Sutton had been unable to collect any precise particulars as to the history of these cases, scurvy being mainly, if not wholly, dependent on the kind of diet taken.

Mr. Brudenell Carter did not wholly subscribe to the remarks of the last speaker, considering that scurvy in some cases was due not so much to the diet taken as to a certain want of power of assimilation of food on the part of the patient.

Dr. Buzzard, whilst believing the cases to be examples of scurvy, suggested that this was probably complicated with some other disorder. Chronic scurvy, not very severe in character, was not uncommon in England at the present day; but in order to account for the rapidly fatal termination in these cases, he thought the intercurrence of some other disease, derived from a mordid poison, must be assumed, and the high temperature which had been noted tended to confirm this supposition.

Dr. Broadbent related particulars of two cases that had come under his notice, similar in some respects to those of Dr. Sutton, one of which died in three weeks, and the other recovered. He particularly emphasied cold, wet, and exposure as chief exciting causes of scurvy.

Dr. Wiltshire had also met with similar cases; and remarked that in females the scorbutic state caused hæmorrhage into the pelvis, which was usually subperitoneal.

Dr. Greenhow agreed with the remarks of Mr. Leach as to diet, and related brief particulars of a batch of severe cases landed at Leith, from Greenland, some years ago, and two cases that had occurred in his own practice, both plainly due to abstinence from vegetable diet. He failed to recognise in Dr. Sutton's cases the marked symptoms commonly spoken of as indicative of scurvy.

Mr. Cooper Forster had seen, when attending the practice of the *Dreadnought* Hospital-ship, a great many very severe cases of scurvy. He also thought that two or three leading symptoms were, in the cases read, conspicuous by their absence; and asked the author if, in his patients, any contraction of the muscles about the popliteal space, or pain and tenderness about the knee and calf, existed.

Mr. Harry Leach remarked that these, though very usual, were not, strictly speaking, universal symptoms among patients admitted into the Seamen's Hospital with scurvy.

The President said that the observations of Mr. Forster, Dr. Greenhow, and Mr. Leach were worthy of special consideration; and having been informed just now by Dr. Buzzard that the production of scurvy in most cases involved abstinence from vegetable diet for some two or three months, he informed the Society that, some time ago, the entire omission of vegetable diet produced blotches on his own skin, of a markedly scorbutic character, in fourteen days. In noticing the remarkably antiscorbutic properties of milk, he cited the case of a medical practitioner who lived exclusively on milk and arrowroot, and showed no symptoms of scurvy until after the lapse of ten or twelve years, convalescing rapidly after change of diet.

Dr. Sutton, in replying, said that the albumen and the vaginal discharge were probably connected; that, with reference to previous history, the patients had merely remarked that they were badly off for food; that he had not observed any contraction or pain about the lower limbs, and that, though unable to say positively as to whether or not these were genuine cases of scurvy, he had rested his diagnosis chiefly on the pathological conditions exhibited, more particularly with reference to the intestines.

Mr. Brudenell Carter described three cases of Optic Neuritis that had come under his notice at the South London Ophthalmic Hospital. In the first case the patient was a young woman, apparently in good health, and the right eye only was affected. Its vision was reduced to qualitative perception of light; and an active mercurial treatment was employed, under the suspicion, which could not be substantiated, that the disease was syphilitic. Speedy recovery took place, and normal central vision was restored; but in one direction there was remaining effusion, and a corresponding blind spot in the field, at the date of the paper. The second case was that of a woman, thirty years of age, who became blind in a few days when in the eighth month of her eighth pregnancy. After delivery her sight began to return; and three weeks after, when she came to the hospital, she could read No. 20 of Jaeger with the left, and No. 16 with the right. At that time there was well-marked optic neuritis in both, with scattered patches of effusion in the choroid. Iron and iodide of potassium were given, and the right eye slowly improved, so that it can now read No. 2, the left remaining almost stationary. Both in the optic discs and in the choroid extensive atrophic changes had taken place. The subject of the third case was a boy eight years old, who fell from the roof of a shed to the ground. Shortly afterwards his left eye began to protrude, and became perfectly blind, while he suffered from severe pain in the head and from sleeplessness. The ophthalmoscope discovered optic neuritis. Treated by iodide of potassium and iron, with chloral hydrate at night, the pain disappeared, and the eye returned to its natural position in the orbit; but the neuritis passed into total atrophy, and not even perception of light returned, the other eye remaining unaffected. In a few observations upon these cases, the author referred to the fact, first noticed by Dr. Hughlings Jackson, that a considerable degree of optic neuritis may be present in certain cerebral affections without impairment of vision. The cases related seemed to show that, besides a traumatic neuritis and a well-known form produced by intra-cranial tumours, there was probably some constitutional state or diathesis with which optic neuritis is associated, as iritis is associated with rheumatism and with syphilis. The discovery of such an association, if it exist, would be greatly promoted by the study of those slighter cases that may be found if looked for, but that do not come to ophthalmic surgeons because they do not, in the first instance, affect vision. The author urged physicians generally to lend their aid in investigating the causes of the affection, in order that its serious form might be successfully treated.

Dr. Hughlings Jackson, as a physician, was glad that an ophthalmic surgeon had drawn attention to the important clinical fact that extremely abnormal ophthalmoscopical appearances may exist when the patient can read the smallest type—viz., brilliant type—and when he considers his sight to be quite good. It is most desirable that ophthalmoscopical examinations should be made in cases of disease of the nervous system, whether the patient complains of defect of sight or not. At all events the ophthalmoscope should be used when there is severe pain in the head, perhaps urgent vomiting as well, and certainly if there be also epileptiform seizures. The cases Mr. Carter had related were of great interest, especially those of uniocular neuritis. In physician's practice optic neuritis is almost invariably double. Dr. Jackson thought it a significant fact that double optic neuritis may occur from disease of but one cerebral hemisphere. With regard to Mr. Carter's remarks on the necessity of investigating the various pathological conditions of the optic nerves in cerebral diseases, Dr. Jackson suggested that a most fruitful field of work would be found in the observation of cases of double optic neuritis, complicated with certain epileptiform seizures, beginning unilaterally. In these cases we can roughly localise the disease causing the two symptoms, and in most of these there is evidence of syphilis.

Mr. Callender could not pass without notice the remark made by Dr. Jackson to the effect that it might be observed that injury to one hemisphere produced effects in both eyes, just as injury to one hemisphere abolished the faculty of speech. It reminded him of the difficulty which stood in the way of accepting such statements by reason of our want of knowledge of the relations which exist between various parts of the great nerve centres. With reference to the question of affections of the organs of sight, we should begin by clearly ascertaining the anatomical relations of the optic lobes in the formation of the fœtal brain. His observations on its growth showed that at the twelfth week the optic masses grew out from the upper sides of the middle cerebral vesicle, just as the olfactory lobes grow out from the lower sides of the anterior vesicle; that they had no connexion with the optic thalami, nor yet with the masses of fibres which unfold through the corpus striatum of either side to form the mantles or hemispheres. Thus it would be difficult, from an anatomical point of view, to associate affections of the organs of vision with disturbance of any of these structures. If injury or disease of nerve structure was to be connected with the occurrence of optic neuritis, it should rather be looked for in the tissues of the upper part of the corpora quadrigemina, or in that curious reduplication of the hinder wall of the posterior cerebral vesicle which is known as the cerebellum.

Mr. Pollock read particulars and exhibited several cases of Skin-grafting and Skin-transplantation. In relating the particulars of the first case in which skin-grafting had been attempted in this country, he stated that in 1869 M. Reverdin originated in Paris this method of treating large ulcerated surfaces. In May, 1870, the author first heard of M. Reverdin's experiments, and at once decided to test the treatment. A girl, eight years of age, had been in St. George's Hospital for some three months and a half, with an extensive open burn of the right thigh, of more than two years' duration. The ulcerated surface extended from the buttock to the knee—broad above, and ending almost in a point below. Mr. Pollock at first transplanted two small pieces of skin about the size of millet seeds, taken from the lower part of the abdomen. Subsequently three, and again, other pieces, were transplanted at various periods—in all, about fourteen pieces had been transplanted. The child was exhibited to the members of the Society, and it was seen that this extensive burn was nearly healed, in a period little over five months, without any perceptible contraction of the cicatricial tissue originated by the transplanted skin. The child had greatly improved in health as the progress of cicatrisation had advanced. In this case two pieces of black skin had been on one occasion transplanted to the ulcerated surface, and became attached; when increased in size, the area of the pigment deposit had considerably increased in one of them, although the whole of the cicatrical tissue due to the transplantion of this portion of skin was not generally dark colored. The sore was attacked some time after by sloughing, which was chiefly confined to the portion in which the black skin had been engrafted, and unfortunately destroyed the whole of the cicatrix due to this transplantation. Mr. Pollock made some general remarks with respect to the mode of transplantation, and the conditions requisite to the success of the operation. He usually transplanted very small pieces, similar to the plan pursued by M. Reverdin, and considered it essential to the success of the operation that the surface of the granulations should be in a healthy state. In some cases the operation had entirely failed, in consequence of the state of the sore. In other cases, though the piece transplanted had become attached and vitalised, yet, owing to the state of the patient's health, it had remained stationary, and gave no sign of increase. Mr. Pollock, in conclusion, thought a tribute of admiration and gratitude was due to M. Reverdin from the profession for the boon he had conferred upon surgery by the introduction of this original method of dealing with large and obstinate ulcers.

Mr. Lawson read a paper "On the Successful Transplantation of Portions of Skin for the Closure of large Granulating Surfaces." He exhibited two patients in whom this mode of treatment had been attended with satisfactory results, and related the history of a third who had been equally benefited by the method of transplantation. In one patient a large ulcer of the leg, which had resisted all treatment for over four years, was completely closed in a few weeks after a piece of skin the size of a fourpenny-piece had been planted on it. As soon as the new skin had established its vitality, granulations sprang from the circumference, and rapidly closed-in the wound. In another patient the results were equally satisfactory. In a third case Mr. Lawson formed a new eyelid for a patient who had a complete ectropion of the upper lid. He dissected the lid from its attachments, pared at two points the corresponding tarsal margins, and united them by two fine sutures, and thus obtained a fixed level surface upon which to transplant a portion of skin. The parts were then left, and on the fourth day, when the wound was covered with healthy granulations, he transplanted a piece of skin of the size of a threepenny-piece, and two days later another portion, of the size of a silver fourpenny. Both pieces rapidly united to the granulating surface, and the space between them was speedily filled up with new cicatricial tissue. A new lid was thus formed, which was sufficient to protect the eye from exposure; but the presence of two pieces of skin, different in appearance to the ordinary eyelid integument, gave to the patient a peculiar and rather unsighty look. In each of these patients the skin which was engrafted not only soon became vascular, but acquired sensibility, and after ten or twelve days could appreciate the slightest touch with a blunt instrument. The conditions which Mr. Lawson found essential for the operation were:—1. That the new skin should be applied to a healthy granulating surface. 2. That skin *only* should be transplanted, special care being taken that no fat adhered to it. 3. That the portion of skin should be accurately applied to the granulating surface. 4. That the new skin should be kept in position without interruption, and that it should be lightly covered with a layer of lint, and over that a small compress of cotton wool, and a bandage, for the purpose of maintaining its warmth, and thus to assist in retaining its vitality until it had established its new life.

Mr. Croft mentioned a case in which he had transplanted a piece of skin a quarter of an inch square on to a large granulating sore of the leg. Eleven days afterwards it had doubled in size, and was now progressing very quickly towards recovery.

Mr. Francis Mason remarked that the size of the pieces which were transplanted was worthy of special consideration; that, according to his own experience, pressure was important, and he regarded several failures that had occurred as due to the difficulty of obtaining this condition satisfactorily, on account of the situation of the parts treated.

Mr. Carter asked Mr. Lawson if a better result might not have been obtained by transplanting a small piece from the other eyelid, so as to preserve the natural delicacy of the skin of the parts.

Mr. Gant agreed that the similarity of texture on both sides of the body was worth recollecting in these cases.

Mr. Spencer Watson gave brief particulars of cases that had come under his notice at the Great Northern Hospital, and considered that the success of the operation depended very much in keeping the transplanted pieces in position.

Mr. Henry Arnott spoke of a case in which two ulcers existed, one having been treated by transplantation and the other left alone; both closed pretty much at the same time; and, in reply to Mr. Heath, said that the case was one of keloid, following a burn.

Mr. Reeves thought that large pieces of skin should be transplanted.

Mr. Arthur Durham eulogised Mr. Pollock and the operation, and said that in a case of pigmentary nævus that had come under his care it was positively beautiful to see the islands of skin joining the mainland and the processes of repair proceeding so rapidly.

Mr. Callender quoted cases under the care of Mr. Pick and Mr. Willett, all of which had done well; and in reply to a question from Mr. Heath, said in all the cases cited, the ulcer was, as far as he knew, of the usual tertiary syphilitic form.

Mr. Pollock closed a long discussion by briefly explaining his own views as to the physiological aspect of the question, and as to the success of the operation in syphilis, and regretted that the state of Paris had prevented any recent intercommunication with Dr. Reverdin, the talented author of the operation. According to his own experience, and particularly with rupial sores, small pieces of skin answered as well as large; and, in this matter, some consideration should be shown to the patient.

Galvanism for the Wounded.—Dr. Moritz Meyer, of Berlin, has founded a small hospital in that capital for the treatment by electricity of wounded soldiers who suffer from lesions likely to be benefited by the galvanic current. Patients with paralysis, neuralgia, &c., will be sent to him daily for the application of the current. Dr. Meyer supplies the instruments at his own cost.

Editorial.

GERMS.

The introduction of what is called the "germ theory" into popular speculations about spreading diseases will furnish a curious subject for some future historian of floating phases of thought. Dr. Richardson has done good service by calling upon us to look this theory, or, rather, this hypothesis, fully in the face, and to compare it with our actual knowledge about the facts to which it is sought to be applied. We do not know that the hypothesis had ever before been definitely formulated, and we suspect that many of those who have talked about germs have had no very precise idea of what they meant by them. The conception of germs as causes of disease seems first to have been popularised by Dr. Wm. Budd's famous letter to *The Times*, more than twenty years ago, on the subject of "Cholera Fungi"; and by the obvious suggestion that, if these fungi were realities, their germs or spores might be the means of propagating infection. Over the cholera fungi the battle raged merrily for a time; and it left behind a very general impression that the bodies seen were little else than the minute particles which the patients had swallowed in the form of chalk mixture. The subsequent progress of knowledge, the use of better microscopes, and the general improvement of methods of research, have taught us that fungi do exist in the evacuations; although their relation to cholera is a problem still utterly undetermined. But the controversy, both in its earlier and later stages, served to render people familiar with the idea of germs as agents in the causation of cholera; and, by a not uncommon figure of speech, the phrase "germs of disease" came to be applied to the unknown agents in the causation of other maladies also. When thus used, germ did not signify the sporule of a fungus, or the ovum of an animalcule, but the *x*, whatever it might be, to which a certain ultimate result was to be ascribed, the origin, or first principle, of the malady. Its use was even less definite than when we say the germ of an idea; for that is something which we can realise; whereas we know the hypothetical germs of disease only by their presumed effects. The use of a single word in a variety of senses has produced, as it never fails to produce, inextricable confusion of thought and language. One who wrote or spoke of the germs of scarlet fever, for example, would leave it doubtful whether he intended to maintain that the poison of the disease is propagated by *quasi* ovules, or whether he referred only to some unknown carriers or agents of contagion. Of late, moreover, the discussions about the origin of the lower forms of life have more embroiled the fray; and it has become manifest to most thinking people that a belief in germs, by which we mean ovular germs, as the causes of spreading diseases, involves the absolutely unreserved acceptance of the doctrine of spontaneous generation. The evidence that such diseases may originate in places to which they cannot have been brought seems to be complete and irrefragable. The results of Professor Lister's practice will by no means bear the interpretation that many persons have put upon them. They are highly valuable as a contribution towards the ultimate desision of the question; but they settle nothing. Even if they could be reproduced with certainty by others, they still would not prove the excluded or destroyed septic elements to be germs; and at present their weak point is that so many careful surgeons fail to reproduce them—thus pointing to the high probability that the antiseptic treatment does no more than combine a number of conditions that are favorable to the healing process, and thus procure a high ratio of excellent results. While, therefore, we fully coincide with the observations made by Dr. Burdon-Sanderson, at the recent meeting of the Medical Society, to the effect that the problems relating to the intimate nature of contagion are not to be settled either by dialectics or by ingenious guessing, but only by careful observation and experiment, and that the materials for fruitful discussion have still to be gathered and stored up, we must in the meanwhile urge upon the scientific advocates of the germ theory that they should discard the use of words of doubtful meaning, and should formulate propositions which they think likely hereafter to be proved. Up to this time the germ theory has oscillated between scientific thinkers on the one hand and tea-tables and popular lecturers on the other, and it is hard to know how it may be grasped or defined. Some of its adherents have found a ready way of meeting difficulties by attenuating the demands of their hypothesis; and the last and most notable step in this direction was probably Professor Tyndall's suggestion that perhaps all the particles in the atmosphere, germs and all, might be packed into a cigar-case. It is almost *lese majesté* to hint that a learned Professor may also be a joker of jokes; but the weakness of the flesh seems to see in such a hint the solution of difficulties that would otherwise be perplexing. For ourselves, we are disposed to turn away from questions about germs and generation with a feeling akin to despair, and to wait in patience and silence for the fruition of the under-current of research that is flowing on, undisturbed by the hubbub of debates without data and of conclusions without basis. There are two or three classes of familiar clinical facts which might, we think, be found to have some bearing on the questions under dispute, and which would be worthy the attention of investigators. The first of these would be the putrefaction of pus in unopened abscesses in certain situations—e.g., near the alimentary canal; the second would be the occasional presence of bacteria in the blood and of vibriones in the urine; and the third would be the frequently poisonous action of the exhalations of persons suffering from spreading diseases upon others who are not susceptible of the specific contagion. We have known instances of people who have passed through scarlet fever, and were no longer liable to it, but who were distinctly poisoned by scarlet-fever patients, so that they suffered from headache, lassitude, pains in the limbs, and even ulcerated sore-throat, within a few hours of exposure. The occasional correlation of scarlet and puerperal or surgical fever is probably another example of a similar mode of action.

INFLUENCE OF MUSCULAR EXERCISE ON THE URINE.

In the *New York Medical Journal* for October we have another contribution to the important subject of the Influence of Muscular Exertion on the Composition of the Urine, from the pen of Dr. Austin Flint, jun. The experiments of MM. Fick and Wislicenus on themselves during their ascent of the Faulhorn, and the still more elaborate investigations of Professor Parkes on soldiers, will be in the recollection of most of our readers. The present case is more analogous in its nature to that of MM. Fick and Wislicenus than to that of Professor Parkes, since it shows the effect of a sudden and violent, but not prolonged, exertion; whereas the experiments of Professor Parkes exhibited the influence of protracted exercise under different conditions as regards food. Dr. Flint's experiment was as follows:—

In the month of May, 1870, Mr. E. P. Weston, a celebrated pedestrian, walked one hundred miles in twenty-one hours and thirty-nine minutes. The weather was mild and clear. Dr. Flint was present during the last three hours of the walk, and, learning that all the urine passed had, as a matter of convenience, been collected in one vessel, eagerly embraced the opportunity of ascertaining what effect such an enormous amount of muscular exercise would have upon disassimilation. Mr. Weston, it appears, is thirty-one years of age, weighing about 120 lbs., and of rather slight make. From his connexion with the daily press, his habits as regards eating and sleeping are very irregular, but his general health is perfect. Previous to the walk he had no preliminary training beyond taking moderate exercise. At the end of the walk he did not seem at all fatigued, and was as well as ever on the following day. He commenced it at 12.15 A.M., and finished it at 9.54 P.M. No urine was passed up to 10.15 P.M., so that the urine collected was practically the urine of twenty-two hours. During the walk Mr. Weston took the following articles of food, in small quantities and at short intervals: between one and two bottles of beef essence, two bottles of oatmeal gruel, and from sixteen to eighteen eggs, raw, in water. He drank a little lemonade, and took water very frequently, a mouthful at a time, only to rinse his mouth. During the last ten miles he took two or three sips of champagne, and about two fluid ounces and a half of brandy, in ten-drop doses. The head and face were sponged freely at short intervals, but he did not perspire much.

Dr. Flint proceeded to make a careful analysis of the urine passed, and compared it with the condition of the urine passed on a particular day some months afterwards. We must refer to the original paper for the full details of these separate analyses; but may insert the following table, which gives the main points, the exercise period (twenty-two hours) being calculated for twenty-four hours.

Total quantity	33·000 oz. ...	80·000 oz.
Urea	191·400 gr. ...	463·368 gr.
Chlorine	110·880 ,, ...	89·808 ,,
Sulphuric acid	47·520 ,, ...	73·776 ,,
Phosphoric acid (total) ...	31·680 ,, ...	120·600 ,,
Ditto with alkalies ...	21·120 ,, ...	102·600 ,,
Ditto with earths	10·560 ,, ...	18·000 ,,
Uric acid	22·440 ,, ...	40·086 ,,

From this table it appears that, allowing for the highly nitrogenous diet consumed on the day of exercise, there was an enormous increase in the amount of nitrogenised excrementitious matters eliminated in the urine, and particularly of the urea; whilst there was a corresponding increase in the elimination of most of the inorganic salts. These results, which are in opposition to recent doctrines, and in accordance with the older views, clearly show that we have still much to learn in regard to the effect of exercise on the wear and tear of muscle.

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ACTION OF PURGATIVES.

There are, perhaps, few points on which our information is less complete than in regard to the mode in which purgative medicines operate. Yet they are administered by practitioners of all shades of opinion with a freedom from hesitation or doubt that would lead an unprofessional observer to believe that their mode of action must have been thoroughly investigated, and that the laws governing their action must be accurately understood. In some instances, indeed, an explanation has been advanced; but this generally proves extremely unsatisfactory on close examination. Take, for instance, the alleged explanation of the purgative action of the neutral salts—such as sulphate of magnesia. We are told that they only act as purgatives when their concentration is greater than that of the blood, and that they thus promote excretion and exhalation from the intestinal mucous membrane by a kind of exosmotic action. But surely this is not sufficient to account for, and we apprehend that few would be inclined to accept it as truly representing, the action of these remedies. In other cases we are called upon to admit a local irritant action, as in the case of croton oil, senna, and rhubarb; but whether these affect the vessels alone and primarily, or the sympathetic system of nerves primarily and the vessels secondarily, is at present a matter of speculation. Whilst, lastly, of the action of those remedies that, like elaterium and podophyllin, contain an insoluble resin as their active principle, and purge smartly in exceedingly small quantities, no rational explanation has as yet been advanced. Some experiments have, however, lately been made by our neighbors indefatigable in science as in war, with a view of elucidating the action of the resinous purgatives, to which we shall call the attention of our readers.

In the first place, Hagentorn, from numerous experiments made with the resin of the convolvulus, or convolvulin (allied to the resins of jalap and scammony), on cats, has shown that neither the resin itself nor a salt of the resinoid acid is capable of producing purging when rubbed into the skin or applied to the mucous membrane of the nose or stomach, or even when injected into the jugular vein. As much as sixteen grains of convolvulin might be introduced into a loop of intestine, the contents of which had been carefully expressed and a ligature applied above and below, and it might even be allowed to remain for twenty-four hours, without producing any other effect than that of reddening the mucous membrane. Untiedt repeated and confirmed Hagentorn's observations; and noted, further, that subcutaneous injection of the convolvulinic acid was inoperative. He also introduced the resin into the rectum, both pure and combined with taurin and with choloidinate of soda, and still found no action; but he made the important discovery that if the resin were mingled with bile or with the biliary acids solution quickly occurred, and violent diarrhœa speedily set in; and these results were fully established by Bastgen for the resins of jalap and scammony, and by Daraszkiewitz for gamboge; whilst Schaur subsequently showed that resins in solution in bile at once acquired a certain degree of diffusibility.

All these observations, then, point to the general conclusion that the purgative action of the resins is due to a local irritation produced by their substances after their solution in bile. This view receives full support from the interesting observations detailed by Dr. Köhler in the last part of Virchow's *Archiv*, who arrives at the conclusion that the irritant or drastic cathartics may be divided into two or three classes—namely: first, into those for the action of which bile is *not* essential, as aloes, croton oil, senna, and rhubarb; and secondly, those for which it is requisite that bile should be present, to act as a solvent and to promote the diffusibility. Of these, two sub-classes may be made: one including jalap, scammony, gamboge, and mushrooms, which, when dissolved, simply act as local irritants; the other including the drastic cathartics of the cucurbitaceous order—elaterium, colocynth, and bryony, in which there is not only a local action of the dissolved resin, but a secondary one on the nervous system after its absorption into the blood.

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SPONTANEOUS GENERATION.

The controversy about spontaneous generation, or, as it must now be called *Abiogenesis*, in this at least resembles history—that it constantly repeats itself. On the earlier days of the meeting of the British Association Dr. Charlton Bastian was conspicuous by his absence, and the opponents of his views had everything their own way. They even went so far—we think a little unfairly—as to criticise the original papers in *Nature* almost as if they had been put forth as the perfect record of a completed research. Now we understood (and Dr. Bastian will correct us if we should be wrong) that these papers contained merely an outline sketch, intended to call scientific attention to the character and general result of his labors, and in some degree to invite criticism of his methods; but that this sketch was but a pilot balloon, so to speak—a preliminary venture to the larger work about to be put forth. If this be so, we do not think it is warrantable to deal with it as if it contained the whole case, or to point triumphantly to the absence of information about this or that detail as invalidating the experiment to which reference was made. Such a course, however, was pursued by more than one speaker at Liverpool; and the papers read by Dr. Child and Mr. Samuelson, which proved abundantly a great deal that had been proved before, left a very distinct impression upon the minds of the ladies who frequent the biological section that Biogenesis was to be the accepted doctrine of the future. Then there came Professor Tyndall's elaborate argument from the phenomena of atmospheric reflection—an argument to which we have already tried to do justice, but which was accepted by many as a conclusive proof of the omnipresence of "germs." Later still, and *apropos* to a paper by Professor Huxley, the biogenetic school had another field day, in the very middle of which Dr. Bastian walked on to the platform, and was very warmly received by the audience. He did not at that time enter into the discussion; but made a verbal statement, instead of reading a paper, on the following day. In this statement he referred especially to the "preserved meat" objection of Professor Huxley, and stated as the results of his inquiries, that while these meats are subjected to much higher temperatures than had been supposed, and this for a prolonged period, yet organisms are to be obtained from provisions supplied from the most approved sources, and sold as "perfectly good." He stated also that in a certain number of the cases of failure which occur the cause of the putrefaction or mouldiness cannot be accounted for. In many cases failure is due to obviously defective closure of the tin case; but in other instances—of course few in number—neither this nor any other cause could be ascertained. Dr. Bastian then proceeded to consider the theoretical objection founded on the resemblance of the supposed new forms to those previously known. He contended that such a resemblance was precisely what was to be expected, and thought that, if we could only be sure of starting with materials of the same molecular composition, we might procure definite kinds of organisms, almost as surely as we could now produce different kinds of crystals. He afterwards discussed the possibilities of error in his experiments, and gave reasons for relying especially upon four that he had made in conjunction with Dr. Frankland. While this statement was being made Professor Tyndall entered the room, and took part in the subsequent debate. He referred to the difficulty of excluding germs; to which Dr. Bastian replied that he had not sought to exclude them, as, if present, they had been subjected to a temperature ranging from 146° to 153° centigrade. The whole question, therefore, is now relegated to the region of inquiries into the degree of heat that will be certainly destructive to the lower forms of life. There, for the present at least, we may be content to leave it.

Medical Annotations.

"Ne quid nimis."

ERYSIPELAS FOLLOWING ACCIDENTS.

A recent decision of the Court of Exchequer is of some interest to the medical profession. The question decided was whether the Accidental Insurance Company (limited), was liable on a policy taken out by a man who died from erysipelas following an injury of the foot of an accidental character. It appeared that the policies of this company contained a clause stating that "it did not insure against death or disability arising from rheumatism, gout, hernia, erysipelas, or any other disease or secondary cause or causes arising within the system of the insured before, or at the time, or following such accidental injury (whether causing such death or disability directly or jointly with such accidental injury)." The question now was whether the death of the insured came within that exception. The majority of the judges decided in favor of the company, holding that, although there could be no doubt the erysipelas was due to the wound, yet they would be departing from the clear and express language of the contract between the parties if they held that the defendents were liable.

We cannot but think that the representatives of the plaintiff who insured his life have been hardly treated, although legally the company may be protected by its policy. It is so impossible to draw the line between the direct and the constitutional consequences of an injury, whether accidental or surgical, that we are surprised that any company should attempt to enforce such a provision as that we have quoted, and that any insurers should accept policies on such terms. It seems odd that while railway companies are held to be liable for the most distant injurious effects which can in any way be traced to an accident against which no insurance money has been received, a company whose special business it is to strike an average of accidents among its clients should be held free from the direct consequences of an injury. We understand that the policies of the Railway Passengers Assurance Company contain no such provision as that referred to, although its policies cover every form of accident, and that its directors have, on several occasions, paid compensation for deaths due to erysipelas, pyæmia, &c.

ANALYTICAL AND SYNTHETICAL INTELLECTS.

In the course of a very interesting article on Darwinism in Germany, contributed to the last number of the *North American Review* by Mr. Brace, the author of the "Races of the Old World," there occurs a passage which, if true, may bring some consolation to those who are accustomed to see all German scientific work held up to admiration, and but scant praise, if any, accorded to the results of English labor. Mr. Brace observes that "The German scientific mind is separated intellectually into two divisions: the specialists, who care little for any philosophic conclusions; the generalisers, who are mainly *à priori* thinkers, and eager to establish some theory of their own. The laborious and careful collation of facts, and the patient and scientific effort to deduce the truth, and only the truth, from these various phenomena, seems to be a mental position not very familiar to the present scientific mind of Germany."

Goethe, moreover, no doubt from the study of his own countrymen, had come to a similar but more generalised conclusion, before Mr. Brace; for, as Mr. G. H. Lewes reminds us in one of his able papers in the *Fortnightly Review*, on Mr. Darwin's Hypotheses, he pointed out, in his review of the controversy between Cuvier and Geoffrey St. Hilaire, that there are two orders of intellect—the analytical, which attaches itself more readily to differences, and the synthetical, which more readily appreciates resemblances: "the one is apt to lose its hold of the law in grasping at all the details; the other is apt to lose sight of the details in trying to trace out the law. Both have their strength and both their weakness. Laws are but organised facts; facts are the elements of laws."

Such being the case, if any intellect of modern times can be truly said to have attained "the golden mean"—and a German, we are sure, would be the last to gainsay it,—it is that of our own Darwin.

ETIOLOGY OF CHARBON.

An important lecture by M. C. Davaine on Charbon, or Malignant Carbuncle, as it appears in Domestic Animals, is contained in a late number of the *Gazette Hebdomadaire*, and has been the subject of lively discussion in the Academy of Medicine. The loss occasioned by this disease amongst cattle and sheep in France alone is estimated at many million francs per anum, and hence it has received great attention from all who have a direct or indirect interest in agriculture. The results of recent inquiries have shown that the disease may be communicated from animal to animal without direct contact, or, in other words, through the agency of a volatile virus; but this is not capable of extending beyond a certain limited distance. The emigration of the flocks is the best mode of preserving them from further ravages. The cases which arise spontaneously, or of which the origin cannot be traced, are too few to be of much importance. Various circumstances induced M. Davaine to think that the propagation of the poison might be effected by the agency of flies (Musca vomitoria); and he records a number of experiments in which the feet and proboscides of flies which had been allowed to alight upon the blood of diseased animals, and were then cut off and introduced into others, occasioned an attack of the disease. Such flies could not, of course, introduce the poison into the uninjured skin, but it might easily thus come into contact with a wound. In the country, again, it might be propagated by flies capable of inflicting a wound; and this is not unfrequently visible in the form of a subcutaneous œdematous tumour, which M. Davaine thinks represents the first stage of the disease. The recovery of the flock after emigration is due to the fact that the flies do not accompany them, but await their return to their ordinary sheds. The increase of the disease in hot or stormy weather is due to the fact that flies are then, as is well known, more irritating; while the observed disappearance of the disease during the prevalence of a cold northerly gale results from the flies then concealing themselves. From all this M. Davaine concludes that the affected animals should be at once removed to a distance from the flock or herd, and the sheds or outhouses fumigated with sulphur and tobacco.

THE GLANDS OF THE STOMACH.

At the last meeting (May 13th) of the Silesian Scientific Society, Dr. Ebstein read a paper "On the Structure and Function of the Mucous Glands of the Stomach," of which an abstract has been forwarded to us, containing the following results of observations made upon the pig, cat, rabbit, and dog. The so-called mucous glands of the stomach are chiefly found in the pyloric region, except a zone having a breadth of about one-third or one-half of an inch, which is chiefly occupied with peptic glands. The alveoli of the stomach are lined with columnar epithelium, the cells of which, at first closed, subsequently burst, discharging their contents, and becoming replaced by others which were previously subjacent. The cells lining the mucous glands are short, contain a granular protoplasm, with a nucleus at the lower end. The entire series of physical and chemical characters of these cells show that they belong to the typical cells (*hauptzellen*) of Heidenhain. Four or five hours after a meal the mucous glands appear cloudy and shrunken, whilst they absorb coloring matters, as aniline blue, with remarkable facility. The mucous glands secrete a fluid which possesses digestive powers, converting albumen into peptone. M. Ebstein, therefore, maintains that there is no essential difference between the mucous and the peptic glands, and recommends that the former should be called simple, the latter compound, peptic glands.

THE ACTION OF LIGHT ON THE FECUNDATED EGG OF THE FROG.

Dr. Leopold Auerbach, in a recent number of the *Centralblatt*, states that during the spring (April 13th to 20th) of the present year he had frequent opportunities of observing the spawn of the frog, and was particularly struck by the circumstance that even the diffused light of day, but especially the direct light of the sun, constituted a powerful excitant of the contractions of the protoplasm of the egg. If the amount of light falling upon an egg, or, more correctly speaking, on the primary segmentation spheres and the secondary results of fission, be increased alterations of form may be seen to occur, even under the eye of the observer. If the egg be so placed that the white pole is directed towards the light, the contractions excited have a tendency to push the black pigment in part over the white area, or even to completely cover it, whilst the opposite pole becomes whiter. When the first meridianal furrow has been completed this pigmentation of the clear area occurs to a less extent. This alteration in the distribution of the pigment must not be confounded with the well-known rotation of the yelk, which depends on the centre of gravity being near the white pole.

FRENCH REGULATIONS FOR CRECHES.

At the *séance* of the 19th of April, the discussion on the subject of *crèches*, or infant nurseries, was concluded at the Academy of Sciences in Paris, and M. Delpech read the new regulations proposed by the Commission, and adopted by the Academy. They are to the following effect. First, the Academy recognises the utility of *crèches*, but considers that to obtain satisfactory results from them they should only receive infants who are more than two months old, and free from all infectious disease. Secondly, that in the event of any child being ill, it should at once cease to be allowed to enter. Thirdly, that inasmuch as the object of these institutions is to favor and promote the suckling of the child by the mother, no infant that has been weaned before the age of nine months should be admitted, except such weaning has been recommended by the medical superintendent. Every mother must attend at least twice a day to suckle her child. Fourthly, the medical superintendent must visit the *crèche* once a day, and is alone responsible for directing the administration of extra or supplementary diet, and the period of weaning. Fifthly, the locality intended for a *crèche* should be scrupulously examined in regard to its salubrity, supply of fresh air, warmth, &c.; and care should be taken not to congregate too many children together in one apartment, but rather to divide them into several. Lastly, the *chèches*, being especially designed to aid the laboring classes, should be situated as near as possible to the great centres of work.

SUBSTITUTE FOR TEA.

We observe in a late number of the *Pharmaceutical Journal* a paper by Mr. Cooke on "Guaranas," the seeds of a sapindaceous tree termed the Paullinia sorbilis, and which does not appear to have hitherto entered into European commerce. The Sapindaceæ, or soapworts, constitute an important order, singular from the circumstance that, whilst the leaves and branches of many of the plants composing it are unquestionably poisonous, the fruit of others is valuable as a dessert. Thus, says Lindley, the Longan, the Litchi, and the Rambutan yield some of the more delicious fruits of the Indian Archipelago, whilst the Rambeh and Choopa of Malacca, the fruta de paraô of Brazil, the Tampin, and Pittomba, and other fruit trees belonging to this order. The horse chesnut belongs to this order, and though not consumed by man, is yet, when taken in moderate quantity, an excellent food for sheep, as the butchers of Geneva are well aware. The guarana-yielding tree is found abundantly in the Amazonas. The fruit is scarcely as large as a walnut, and contains five or six seeds, which are roasted, then mixed with water, and moulded into a cylindrical form, resembling a large sausage, and finally dried in an oven. Before being used it is grated, and then resembles cacao. Two spoonfuls of the powder are mixed in a tumbler of water, and this drink is regarded as a stimulant and nervine tonic. Like strong tea or coffee, it is said to take away the disposition to sleep. The active chemical principle is an alkaloid that Dr. Stenhouse has shown to be identical with theine. Guarana contains more than double as much of this alkaloid as good black tea, and five times as much as coffee, the proportion being 5·07 per cent. in guarana.

CONCENTRIC CALCULATORS.

Under this name Mr. Bellows, of Gloucester, has just made public a very ingenious and useful contrivance. It is an arrangement for combining various quantities of different denominations by means of revolving discs, set by the finger, and of then reading off equivalent quantities in other denominations. One series (called Series A), said to be especially for the use of chemists and medical students, is for the conversion of metric weights and fluid measures into English equivalents. It consists of four sets of concentric discs, contained on a card that folds into a compass of four inches by two. The first set enables us to read off the equivalent in grains of any quantity from 1 centigramme up to 99·99 grammes. The second converts any quantity between 100 grammes and 99·99 kilogrammes into pounds and ounces avoirdupois. The third converts divisions of the litre into fluid ounces, drachms, and minims; and the fourth, hectolitres and litres into gallons and pints. All this is done almost at a glance, without the possibility of error, and without the necessity of writing down anything but the result. It is now so much the custom to use the metric system in all chemical work, that Series A cannot fail to be highly useful to many of those for whom it is intended. The inventor has applied the same principle to other kinds of calculation—e. g., to the determination of interest, and to the English equivalents of foreign coins; but these applications, however ingenious and valuable, it does not fall within our province to notice at length.

THE MODE OF TERMINATION OF MOTOR NERVES IN ORGANIC MUSCLE.

M. Hénocque has been making a series of investigations on this subject, the results of which he communicates to M. Brown-Séquard's *Archives de Physiologie* for May, and has arrived at the following conclusions:—1. The distribution of the nerves in smooth muscle is not only identical in man and other vertebrate animals in which it has been observed, but is essentially similar in all the organs containing smooth muscle. 2. Before terminating in the smooth muscles, the nerves form three distinct plexuses or net-works—(*a*) a chief or fundamental plexus, containing numerous ganglia, and situated *outside* the smooth muscle; (*b*) an intermediate plexus; and (*c*) an intra-muscular plexus, situated *within* the fasciculi of smooth fibres. 3. The terminal fibrils are everywhere identical; they divide and subdivide dichotomously, or anastomose, and terminate by a slight swelling or knob, or in a punctiform manner. The terminal swelling appears to occupy different parts of the smooth muscular fibre, but most frequently to be in the neighborhood of the nucleus, or at the surface of the fibres, or, lastly, between them. The methods of investigation adopted by M. Hénocque have been very numerous, including the maceration of the preparations, obtained in as fresh a condition as possible, in aqueous humor, artificial serum, pyroligneous acid, chromic acid, chloride of gold and potassium, especially the latter, in a strength of 1-200th.

Correspondence.

"Audi alteram partem."

FATAL CASE OF PERI-UTERINE HÆMATOCELE.

To the Editor of The Lancet.

Sir,—Cases of peri-uterine hæmatocele not being very common, I venture to send you a brief account of a fatal case under my care.

H. P——, aged thirty-one, married, the mother of three children, the youngest aged ten months; had one miscarriage about two years ago. Her present baby was weaned at six weeks; since that time she has been regular till the beginning of August, when she passed a week over her usual time; then she had a slight menstrual discharge, which continued till Sept. 5th, a period of three weeks. During the last few months she has complained frequently of severe pain in the back, which has obliged her sometimes to keep her bed.

On Sept. 6th she was in her usual health, and between 2 and 3 P.M. she went up-stairs to dress, carrying her baby in one arm, and a jug of water in the other hand. Whilst brushing her hair she became suddenly faint, and felt a "pain all over her." I saw her for the first time about 5 P.M. She was in a state of collapse; sensible; countenance pallid; eyes sunken; pulse at the wrist scarcely perceptible. She had vomited two or three times, simply half-digested food. She complained of great pain at the pit of the stomach and between the shoulders, with a feeling of suffocation. She said she thought she had a miscarriage. A vaginal examination showed there was no uterine discharge whatever. The vagina was cool; its upper walls somewhat tender to the touch, soft and bulging. Brandy, opium, and ether were administered freely; but she gradually sank and died at 12.30 A.M. on Sept. 7th, about nine hours and a half after the commencement of the attack.

A partial post-mortem examination of the body was made in the afternoon of Sept. 7th. The cavity of the peritoneum contained a large quantity of fluid blood, and the pelvis was literally full of dark clots. The right ovary was a cyst about the size of a small orange, and surrounded by a plexus of large veins; the left ovary was also a cyst about the size of a walnut. There were also numerous large veins in the tissues behind the bladder and in front of the rectum. All the other pelvic and the abdominal organs were healthy. The thorax and skull were not opened.

Yours obediently,

E. Pearl.

Windsor, October 1st, 1870.

◆

LIFE-LIKE IN DEATH.

To the Editor of The Lancet.

Sir,—A few days since the general public was excited by the account of a "headless horseman," who was seen riding furiously at the battle of Woerth. The few following cases, taken from notes during the late American war, will bear some analogy to the above.

After the battle of Savage Station, situated on York River Railroad, from White House on the Peumunkey to Richmond, the capital of Virginia, on the retreat of General M'Clelland from the Chickahominy, the rear guard of the North formed line of battle across the railroad to contest the advance of the enemy, also to give time for removal of military stores and ambulances. The Union forces were uncovered, with the exception of a portion of their left, which was in the woods. The South centre then facing the left centre of Union troops, a deadly encounter took place. After the battle, leaning against a tree, a soldier was found, perfectly stiff in death, in the posture of last in life. His gun was brought to the shoulder in the act of firing; cheek pressed against stock; left eye closed; right open, glancing along the barrel; gun unfired.

2nd. Body in perpendicular against a tree; gun to ready; head forward for the purpose of observing sight for aim; was struck in this position, ball entering nasal eminence, passing out below occipital protuberance.

3rd. One knee resting on ground; rifle grasped in left hand for purpose of loading; cartridge in right hand about an inch from mouth, the end having been bitten off.

4th. At the battle of Antietem, State of Maryland, in front of the Old Church, on road from Shaftesbury to Hagger's Town, an artilleryman in Henrico's Battery (General Stonewall Jackson's army), while in the act of "thunching," was killed by a ball in the forehead. He remained stiff and fixed.

These are but a few; others might be quoted.

Your obedient servant,

Logan D. H. Russell.

Kensington, September 8th, 1870.

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EXTIRPATION OF THE COCCYX.

To the Editor of The Lancet.

Sir,—In the October number, 1870 (American reprint), of The Lancet, you publish a letter from Mr. Lawson Tait, in which he takes from me the credit of having preceded Sir Jas. Simpson in the operation of extirpation of the coccyx for coccydinia, and says:—"It is more than *eight years* since I assisted Sir James Simpson to extirpate the bones in an inveterate coccydinia, for which repeated subcutaneous incisions had been made," &c.

In the May number of the *New Orleans Medical Journal*, 1844, *twenty-six years ago*, was published my first case. About a year after I published a second case. The two specimens were presented to Dr. Meigs, of Philadelphia, who alluded to my cases every year afterwards, till he resigned his chair, in his lectures in the Jefferson Medical College.

I have never taken any trouble to establish my priority. Dr. T. G. Thomas very kindly alluded to the facts in his work "On Diseases of Females"; and I should not now trouble you with a word on the subject were it not for the fact that those who do not know me might think it involved a question of veracity on my part.

I fear that the writer speaks with too much confidence as to the benefits arising either from the extirpation of the coccyx or subcutaneous division of its attachments. These operations have been found not infrequently to fail, in the hands of others as well as myself. I have seen several cases of failure which had been operated upon by Sir James Simpson.

I will not take up more space with remarks I might make on the class of cases to which these operations are peculiarly applicable.

Very respectfully your obedient servant,

J. C. Nott, M.D.

New York, Oct. 17th, 1870.

Foreign Gleanings.

CALCIFICATION OF BRAIN-CELLS BY COMMOTION.

In one of the last numbers of his *Archiv*, Prof. Virchow publishes the following note, which we translate verbatim:—

"When, some time ago (1856), I first discovered the occurrence of calcified ganglion-cells in the brain, I was inclined to place it under the head of the 'lime-metastases' I had already described. Since then, however, from the consideration of a large number of cases, I am convinced that another explanation must be given. The process obviously belongs to that series of phenomena that I have recently (1867) described as one of the peculiarities of dead parts still remaining in the interior of the human body. I find foci, especially in the cortex of the brain, in which the cells, with their processes, and sometimes also fine nerve-fibres, are calcified, and this extremely frequently after injuries of the bones of the skull. Sometimes at these spots of the brain atrophic depressions occur, the so-called yellow plates, as in the observations I have elsewhere recorded, whilst at others nothing is visible to the naked eye. In the former case, after a peculiar disintegration of the brain in the form of red softening has occurred, the calcified elements are found in the interior of the softened portion, but generally towards the periphery. In the thicker brown cicatrices they lie in the adjoining substance of the brain, the cicatrix containing dead brain-cells only. The latter is the most interesting case, as nothing is visible to the naked eye. On several occasions where traces of external injuries, as fissures, were perceptible on the skull, I have investigated the subjacent uninjured portions of the gyri, and have found the ganglion-cells of the cortex calcified. These were therefore genuine cases of necrosis by commotion. So far as I can see, no one has followed out these remarkable processes beside myself. Förster, who first described them, made his observations upon the spinal cord; mine were made exclusively upon the brain."

ANEURISM OF THE AORTA: CURE BY GALVANISM.

Dr. De Cristoforis has published a case of this kind, in which he met with the same success obtained by Dr. Ciniselli, of Cremona, the latter cure being recorded in the *Ippocratico* of Feb. 15th, 1869. Dr. De Cristoforis's patient is a man of forty-five years, whose aneurism did not form the usual tumour, but the case was perfectly clear. Three needles were introduced into the sac, and the current was allowed to pass alternately through each for forty-five minutes altogether. Most favorable symptoms set in, the pulsations ceased, and the man recovered. Dr. De Cristoforis, says the *Ippocratico*, has another case of the same kind in hand, in which he intends to use the same means of cure.

OBSTINATE HICCUP.

Dr. Juaritz states, in the *Siglo Medico*, that a medical man, just convalescent of gastric fever, was seized with hiccup, which persisted in a very fatiguing manner. Many antispasmodics were tried with no effect, when relief was obtained by an infusion of mustard, which the patient drank in mistake, thinking it an infusion of linseed.

RAPID CURE OF BUBOES.

Dr. J. Grünfeld, assistant to Sigmund, of Vienna, has had much success in extracting the pus by means of a hypodermic needle, india-rubber tube, and syringe. Where the cavity fills again, a second operation of the same kind should be undertaken; and when the pus is unhealthy, weak solutions, either of carbolic acid or chlorate of potash, should be injected, and pumped out again by the same syringe. Such patients as were so treated left the hospital much sooner than those whose buboes had been freely laid open.

ADVANTAGES OF THE LARYNGOSCOPE.

The *Marseille Méd.* of July, 1870, mentions two cases, treated by M. Duranty, where the diagnosis rested completely on the use of the laryngoscope. One had reference to a man, aged forty-one, affected with abscess lying in the inter-artenoid space; and the other to a woman, aged fifty-six, suffering from a gummy tumour on the left vocal cord. The first was cured by puncture, the second with iodide of potassium.

NARROW PELVIS; EARLY ARTIFICIAL DELIVERY.

Modes of performing this operation have, of late, been much improved, the douche being now-a-days, the favorite method. Dr. Otto Spiegelberg, of Breslau (*Archiv für Gynæk.*, 1870), has undertaken to show, by statistics, that the results of the operation are less favorable than the consequences of waiting for natural delivery, even when the diameter is reduced to below eight centimetres—i. e., a little less than three inches. The figures quoted and the arguments are very convincing, and they deserve the careful attention of accoucheurs.

RESECTIONS IN RECENT WOUNDS.

Whether immediate resection, or treatment by ice and rest, or Lister's method is to be employed in injuries of joints (especially injury from gunshot) is not quite settled. No doubt the surgeon must be guided by the minute circumstances of the case. But we may, in the meanwhile, quote a passage from Dr. Fischer's report during the earlier part of the present war:—"The number of gunshot injuries to joints was very great; we first tried to treat them without operative interference, and succeeded in a pretty large number of cases. We were, however, obliged to resort to resection in 34 cases—viz., 13 of the shoulder, 15 elbow, 3 foot, 1 knee, 1 hip, 1 scapula. The results proved favorable beyond our expectations, as we lost only four patients, each of whom was very ill before the operation."

PERFECT CLOSURE OF WOUNDS.

Professor Tyndall probably considered his cotton wool advice quite original; but we find that Dr. Rapp, in Rottweil (Germany) has, for the last five years, treated all wounds with cotton wool layers, basing himself upon Pasteur's theory. He moistens the wool with a weak mixture of water and tincture of arnica, and leaves the dressings six or seven days, with the best results. This method is worth a trial, and should be placed in juxtaposition with Lister's.

REMOVAL OF THE THYROID BODY.

In No. 27, 1870, of the *Wiener Med. Woch.* we find a description, by Dr. V. Czerny, of numerous experiments upon dogs (on Billroth's suggestion) to ascertain whether the thyroid body could be wholly removed without a fatal issue. After four dogs had passed through the ordeals of tracheotomy, laryngotomy, partial removal of trachea, &c., a fifth underwent a careful operation, detailed at great length by Dr. Czerny, after which it was left without the thyroid body, the epiglottis being preserved. The poor animal in a little while contrived to swallow food pretty well, and breathed freely. The author concludes that in cases of cancer of the thyroid body, the operation might, with some risks, be undertaken upon the human subject.

HYDRATE OF CHLORAL AND MORPHIA IN TETANUS.

Dr. Gronemann has published the case of a man of forty-four, who suffered from tetanus in consequence of a shot in the chest. Chloral alone did not relieve the spasms, but when morphia was given with it, the improvement was manifest. The prescription was as follows: Hydrate of chloral, 150 grains; hydrochlorate of morphia, 3 grains; distilled water and simple syrup, of each two ounces: the fourth part night and morning. The man recovered.

TANNIN *versus* ALUM.

Dr. Max Jaffé, of Hamburg, contends (*Med. Press of Vienna*, No. 39, 1870) that alum, so frequently used for gargles, is hurtful to the teeth, and holds that tannin, dissolved in water or red wine, is far preferable.

News Items, Medical Facts, &c.

The Berlin "Staatsanzeiger" publishes an official summary of the sick, wounded, and cured in the German armies since the commencement of the war. The number of sick and wounded registered by the proper department is 54,450. These soldiers were received in 1188 hospital and ambulances, 48 being military hospitals and ambulances, and the remainder those established by societies and private persons. The convalescents who have returned to their regiments, or have been sent into the interior, number 4597. The wounded who were discharged cured, including a few invalided soldiers, number 3868; 518 wounded and sick have died in the hospitals. The proportions per cent. are: 8·44 convalescent, 6·90 cured, 0·08 invalided, 0·95 deceased.

The Typhus Patients in Berlin.—There are about 800 patients in the shed hospitals of this capital, the men being placed in fifty separate sheds. Three distinct ones have, of late, been erected for the reception of typhus cases; but only two sheds are now occupied by 38 patients. This is a small figure when compared with the sum total of sick and wounded. It will appear still smaller when it is recollected that all the hospitals of Berlin are expected to send their typhus cases to the sheds above mentioned. The medical men in charge consider that, by means of isolating the men stricken down by fever, the spread of the disease has been arrested.

The University of Berlin has applied to the Secretary at War for the names of the students who have volunteered their services, and have died in the field, or subsequently of their wounds. The names are to be engraved on a tablet, which will be placed in the principal hall of the university building.

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JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

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Clinical Lectures ON MEDICINE.

Delivered at the Middlesex Hospital.

By Charles Murchison, M.D., LL.D., F.R.S.,

Physician to the Hospital, and Lecturer on the Practice of Medicine; Consulting Physician and Vice-President of the London Fever Hospital.

LECTURE V.

ON SOME OF THE VARIETIES OF ENTERIC FEVER.

Gentlemen,—You have recently had under your observation several cases of enteric fever, of which I shall avail myself to illustrate some of its most remarkable varieties. The varieties of enteric fever constitute a large and most important subject; for there is no malady that assumes a greater multiplicity of forms, or that leads to greater mistakes in diagnosis. In one lecture, however, we can only glance at some of the principal varieties.

In the first place, however, you must remember that, whatever form the disease assumes, every case of it is due to a specific poison, the source of which we shall not stop at present to consider. It does not become "engrafted upon" a remittent fever or a gastric catarrh, nor does it, in its course, "pass into" typhus or any other malady. From first to last the symptoms are due to the disturbance set up in the system by a specific poison.

As in many other diseases of the same class, the poison of enteric fever produces symptoms of a twofold nature—namely: (1) general pyrexia, with derangement of all the animal functions; and (2) local disease in one particular part of the body, which, in the case of enteric fever, consists of enlargement ending in ulceration of the agminated and solitary glands of the ileum. You know that in scarlet fever and diptheria the poison not only causes fever, but a local disease in the throat; the poisons of measles and whooping cough not only cause fever, but catarrh of the respiratory passages; and the poison of erysipelas causes both fever and an inflammation of the skin. The same rule holds good in enteric fever, and its recognition explains many of the varieties of the disease. In some cases the fever and general symptoms preponderate; in others, those of the local disease; in a third class both are prominently developed; while in a fourth, both occur in the mildest form, or there may be no symptoms whatever to denote the existence of the local lesion.

I shall in the first place bring under your notice examples of the disease in which the general symptoms preponderated.

Case 1. *Enteric fever; death from acute congestion of the lungs on the thirteenth day.*—Marian B——, aged twenty-eight, was a sister in one of our wards. As a girl she had been delicate, and she had always exhibited a proneness to acute specific diseases. When twenty-one years of age she caught typhus in St. Thomas's Hospital; and this fact, by the way, is interesting, as showing that an attack of typhus in no way protects from one of enteric fever. When twenty-five, though vaccinated, she contracted small-pox; and in the following year she was laid up for five weeks with scarlet fever. Ever since this attack of scarlet fever she had never enjoyed good health: she had been anæmic, and had suffered from leucorrhœa and irregular menstruation, and attacks of bilious vomiting; and in her twenty-eighth year she had been laid up with pneumonia. She was evidently a bad subject for any fresh acute disease.

On the 17th of last September (1870) her fatal illness commenced with chilliness and thirst, but for two days she went about and attended to her duties. On Sept. 19th she took to bed, complaining of very severe headache and frequent attacks of violent retching, with high fever. She had intense thirst, and her appetite was capricious; there was no tenderness or distension of the abdomen, and the bowels were constipated. Dr. King, the resident medical officer, who saw her, ordered aperients, salines, and bromide of potassium. On Sept. 23rd (seventh day), when I first saw her, the same symptoms persisted. Pain in the head still intense, and described as of a bursting character, with occasional flashes of light before the eyes; no sleep for several nights; mind clear; still frequent vomiting; tongue thickly coated and white; bowels confined; pulse 120; temperature 103·4°; no eruption on the skin. She was ordered five grains of calomel as an aperient, a diaphoretic mixture, and an opiate draught at night. On Sept. 24th it was noted that she had slept for several hours after the opiate, but that her general condition was unchanged. Sept. 25th (ninth day): Pulse 120; temperature 102·2°; no eruption; less headache and vomiting; manner a little odd. In the evening of this day the patient had evidently become much worse; pulse 120; temperature 103·4°; respiration 44; signs of hypostatic engorgement of both lungs; wild, anxious look, with delirium, subsultus, and tremors. Sept. 26th (tenth day): Pulse 112; respiration 60, and irregular; temperature 104·8°; tongue dry; bowels confined; no albumen in urine; still has headache and vomiting, but both are less urgent; occasional delirium; a few petechial spots, but none characteristic of any form of fever. Ordered, brandy, ether, and ammonia; and sinapisms to the chest. Sept. 27th: Same symptoms continue, with the addition of carphology; respiration 60. Ordered, small doses of turpentine, with ether and brandy. At 9 P.M., pulse 135; respiration 65; temperature 104·8°; increased congestion of lungs. Ordered dry cupping to chest. Sept. 28th (twelfth day): Headache and vomiting ceased, but does not appear better; is more heavy. This morning, for the first time, had three ochrey stools; pulse 128; temperature 103·4°; no eruption. The chest was again dry-cupped. Sept. 29th (thirteenth day): Is worse; pulse 126; respiration 60, and embarrassed; face and lips livid; moist râles heard all over the chest, but has no power to cough; albumen (1–10 in volume) in urine; temperature 103·2°; tongue dry; no more diarrhœa; very heavy and prostrate, but appears conscious. Eight ounces of blood were taken from the chest by cupping; while at the same time brandy, ether, and ammonia were given freely. The breathing appeared to be temporarily relieved by the cupping, but the patient died at 7.30 P.M.

Although it is not the custom to examine the bodies of nurses dying in hospital, yet as it might have been argued that this was not a case of enteric fever, permission was obtained to examine the lower three feet of the ileum. In the specimen now before you you see the characteristic lesions of enteric fever in an early stage. The agminated and solitary glands are much enlarged and elevated, but ulceration has not yet commenced.

The points which I wish you particularly to note in this case are: 1. That the early symptoms—violent headache, vomiting, and constipation—were the symptoms of meningitis rather than of fever. 2. That there was no diarrhœa, and, in fact, that the bowels did not act, except from medicine, till thirty-six hours before death. 3. That the conventional symptoms of enteric fever—abdominal distension, pain, and gurgling—were all absent. 4. That there were no typical rose spots. 5. That the unusually high temperature coexisted with a great severity of the general symptoms. According to Trousseau, no person recovers from enteric fever if the temperature exceeds 105°; and although this assertion may be too dogmatic, the exceptions to it are rare. 6. That death was due to acute congestion of the lungs, commencing in their dependent parts, and rapidly extending over the whole of both organs. The object of the cupping was to relieve this congestion and avert the impending asphyxia. 7. That death occurred as early as the thirteenth day. It is not often that we have, as in this case, an opportunity of seeing the lesions of enteric fever before ulceration has commenced.

CASE 2.—*Enteric fever; sudden acute delirium on the fifth day.*—This case I saw in private, but it is well worthy of your attention. The patient was a German gentleman, aged forty, who had been much excited by the present war. After about four days of slight malaise, which attracted little notice, he passed suddenly into a state of acute maniacal delirium, requiring two men to hold him down in bed, and absolutely refusing all food. With this there was fever, the pulse being quick, and the temperature 102°, a dry tongue, and slight diarrhœa; but no spots. The patient was ordered half a drachm of hydrate of chloral every two hours. After the second or third dose, he slept well; and next day he was quiet and much better in every way, but the fever ran its course.

In several instances I have known acute maniacal delirium manifest itself on the first day of an attack of enteric fever. The case is then apt to be mistaken for one of insanity, and in more than one instance I have been consulted under such circumstances as to the propriety of removing the patient to an asylum. Similar cases are referred to by many writers as enteric fever; but I would particularly refer to an essay of which an abstract is published in the *Archives Générales de Médecine* for 1868 (vol. xi., p. 504), in which the author, M. Motet, describes cases of enteric fever which, from the early occurrence of acute delirium, were mistaken for insanity, and actually removed to an asylum. You will readily understand the serious nature of such an error in diagnosis.

The next case is an illustration of enteric fever causing great derangement of all the functions in the body, as well as symptoms directly referable to the intestinal lesion. The case also illustrates what I have so often endeavored to impress upon your attention—viz., the difficulty that sometimes arises in distinguishing between enteric fever and acute tuberculosis.

CASE 3. *Enteric fever simulating acute tuberculosis.*—Mary Ann B——, aged twenty-five, was admitted into the Middlesex Hospital on Oct. 11th, and died on Oct. 17th, 1870. She was an only child, her mother having died early in life of consumption. The patient's own previous history also pointed to chronic pulmonary phthisis. She had never been strong, and for many years she had suffered from cough, which for twelve months had been much worse, and been accompanied by emaciation and night-sweats. Her friends stated that about twelve days before admission her previous symptoms had undergone a great aggravation. The cough became much worse, and was attended by copious purulent expectoration. There was much fever, with profuse perspirations, rapid emaciation, and great prostration.

On admission, the patient presented exactly the appearance of a person in an advanced state of phthisis. She was extremely prostrate and emaciated, and had a circumscribed pink flush on the cheeks, which came and went. The pulse varied from 120 to 140, and the temperature from 101° to 103·5°. Whenever she slept she was bathed in profuse perspirations, and her hands were quite sodden. The respirations were 40, and there was great dyspnœa; the patient expectorated a large quantity of creamy pus, the voice was husky, and coarse moist râles were heard everywhere over both lungs. The tongue was dry and red, the abdomen flat, and there was no diarrhœa. The skin of the trunk was covered with miliary vesicles, but there was no other eruption. To these symptoms must be added constant delirium and sleeplessness.

The treatment consisted in stimulants, quinine, mineral acids, and the hydrate of chloral to induce sleep. No improvement took place. On Oct. 15th the patient lost upwards of a pint of liquid blood from the bowel; and although the hæmorrhage was checked by the administration of acetate of lead and opium, she rapidly sank, and died on Oct. 17th.

At the autopsy no tubercle was found anywhere. In the lower part of the ileum there were numerous so-called "typhoid ulcers," from all of which the sloughs had separated, and whose margins were formed by loose fringes of mucous membrane. The ulcers which I show you are unmistakably those of enteric fever, and have not the slightest resemblance to those produced by tubercle. The lungs were intensely congested and œdematous; there was commencing lobular pneumonia in the lower lobes of both, and recent lymph on the surface of the left. At the entrance to the larynx there were several small ulcers, the largest forming a deep excavation in front of the epiglottis, and being the apparent source of the pus which was expectorated during life.

The chief point to note in this case was the remarkable similarity of the symptoms to those of acute tuberculosis. Hectic fever is common to both enteric fever and phthisis; but the absence of diarrhœa or other abdominal symptoms, and of rose spots, lent no support to enteric fever; while the patient's history and the pulmonary signs and symptoms pointed strongly to phthisis. Only one symptom was more in favor of enteric fever than of phthisis, and that was the copious intestinal hæmorrhage two days before death. Copious hæmorrhage from the bowels is a common symptom in enteric fever, but is a very rare result of the tubercular ulcer.

The following case illustrates the danger in enteric fever from the local disease:—

Case 4. *Enteric fever; perforation of the bowel and peritonitis.*—Horace B——, aged fifteen, was admitted into the hospital on Sept. 20th, 1870. Three or four weeks before, he had been seized with shivering, which was followed by loss of appetite and emaciation, slight cough, and occasional vomiting, but no diarrhœa.

When brought to the hospital the boy was weak and thin. He had fever with evening exacerbations, but no spots; mind clear; tongue moist and white, but red at edges; bowels regular; abdomen neither distended nor tender; but occasional vomiting. The boy had a frequent hacking cough, and a few moist râles were heard over his lungs. He was treated with quinine and mineral acids.

On Sept. 25th rose spots were noted for the first time, and there were several loose ochrey motions. On both cheeks there was a hectic flush. The boy continued to vomit at intervals; and on Oct. 1st there was still moderate diarrhœa, the abdomen was distended and tympanitic, and there was tenderness in the right iliac fossa. At 9 P.M. on Oct. 3rd the patient had a distinct rigor, and the temperature, which in the morning had been 99·3°, and in the evening of the 2nd 102·2°, rose to 103·4°. This rigor ushered in all the symptoms of acute peritonitis—collapse, sunken features, copious sweat, thoracic breathing, flexion of the thighs and knees, tension and tenderness of the abdomen, frequent vomiting, and suppression of urine. On Oct. 5th the pulse was 165, respiration 57 and thoracic, temperature 105°. At 3.45 P.M. the boy died. Opium had been given freely with no effect.

On examining the body there were found all the signs of recent acute peritonitis. There were two perforations in the lower part of the ileum—one an inch and a half above the valve, gaping and allowing the intestinal contents to escape; the other nine inches higher up, and closed by recent adhesions, gluing the ileum to the colon. The sloughs had all separated from the intestinal ulcers, and most of the ulcers seemed to be healing.

The circumstances most deserving of notice in this case were these:—1. Before the occurrence of peritonitis the symptoms had been comparatively mild, and till five days before there had been no diarrhœa. 2. The symptoms pointing to the occurrence of peritonitis were well marked. In many cases of enteric fever, however, peritonitis is latent, and its occurrence is overlooked. It is important to remember that there may be peritonitis without either pain or vomiting, and that a sudden increase of prostration and thoracic breathing may alone denote its presence. 3. The symptoms of acute peritonitis were preceded for many days by vomiting. Vomiting in or after the third week of enteric fever ought always to be regarded as a serious symptom. In a large number of cases it is either the presage of peritonitis or an indication that this has actually commenced.

The foregoing cases are all formidable examples of the malady. Many cases of enteric fever are, however, so mild, both as to local and as to constitutional symptoms, that there is difficulty in recognising the disease. There may be no diarrhœa, no abdominal distension or pain, and the appetite may even, to some extent, be retained; symptoms of pulmonary and cerebral derangement may likewise be absent. These cases are characterised by —1. A mild remittent fever, with evening exacerbations subsiding with more or less perspiration, and with the temperature scarcely if at all elevated during the remissions. The pulse may scarcely if at all exceed its natural frequency. 2. The tongue is moist, coated with a thin white fur, and a little too red at the tip and edges; or it may be perfectly clean and natural. 3. Daily increasing debility. 4. Emaciation. 5. Rose spots may or may not be present. 6. No local disease to account for the symptoms.

Cases answering to this description are commonly regarded as distinct from enteric fever, and are often designated "simple continued fever." Those of you who take the trouble to peruse the weekly reports of the Registrar-General cannot fail to perceive that simple continued fever, distinct from typhus, enteric, or relapsing fever, is reported to be a common cause of death in this country. At the present moment it would appear to be destroying a greater number of persons than typhus itself. It is not a little remarkable, however, that in the fifteen years I have been connected with the London Fever Hospital, I have never known a patient die of simple continued fever as distinct from typhus, enteric, or relapsing fever. I have accordingly come to the conclusion that these cases of so-called simple continued fever are, for the most part, enteric fever devoid of its usual characters, but terminating in death from some accidental complication. This view has been strengthened by the fact that in practice I have met with many cases which have been regarded as simple continued fever, without any intestinal lesion, but which I have had no hesitation in declaring to be enteric.

One circumstance which has contributed to what I conceive to be this error in diagnosis is the common belief that diarrhœa and other abdominal symptoms are essential to enteric fever. This belief it seems to me has been confirmed by the very designation *enteric*, commonly applied to the form of fever under consideration, and now endorsed by the high authority of the Royal College of Physicians, but which I humbly think is open to as grave objections as the term *typhoid*, for which it has been substituted. Anatomically, the designation is no doubt strictly applicable, but clinically it is not. In a large number of cases of "enteric fever" there are no enteric symptoms—no diarrhœa, no abdominal distension, pain, or tenderness, and no gurgling—from first to last. It is not surprising, then, that in practice when it is only possible to regard the case clinically, many medical men refuse to call a fever enteric in which there are no enteric symptoms.

Several mild cases of enteric fever answering to the above description have been under treatment in my wards during the last twelve months. One of these cases I may briefly recall to your memories.

Case 5. *Enteric fever; mild attack, followed by a relapse; no abdominal symptoms.*—Frederick J——, aged eighteen, was admitted under my care on Oct. 21st, 1869. He had been taken ill on Oct. 2nd with headache, vertigo, pains in limbs, weariness, and loss of appetite; but he had not taken to bed until Oct. 16th. His brother was in another hospital suffering from fever and diarrhœa; but at no time, either before admission or subsequently, did Frederick J—— have diarrhœa, sickness, pain, tenderness or distension of abdomen, or delirium. His chief symptoms were these:—He had fever of a remittent type; his temperature in the morning was about 101°, but it would rise in the evening to as high as 103·5°; his pulse never exceeded 90, and in the morning it might be as low as 60; there were slight perspirations during sleep, and now and then a few obscure rose spots were noted on the skin; occasionally there was slight epistaxis; the tongue was moist and coated with a thin white fur, but was red at the tip and edges; there was little appetite and moderate thirst, and the bowels were so costive that the patient would go for three, or even seven, days without any relief. As the disease progressed, there was considerable prostration and emaciation. About the thirtieth day the patient appeared convalescent, and the temperature regained its normal standard; but after a week's interval he had a relapse, with fresh rose spots, which lasted about twelve days, and ran exactly the same course as the first attack. On Dec. 7th the patient left the hospital well.

It may be asked, however—How are we to diagnose enteric fever if its recognised pathognomonic symptoms be wanting? In reply, it must be admitted that in many cases a diagnosis can only be arrived at by a process of exclusion; but, practically, I believe that the rule which I am about to lay down will in most instances be found to hold good. A fever which *in this country* (aguish districts excepted) persists beyond seven days, and is unattended by any cutaneous eruption, or by signs of local disease in the head, chest, or elsewhere, is typhoid or enteric fever, even though there be no symptoms directly referable to the intestinal lesion. In all such cases you ought to suspect the existence of intestinal disease—I do not say ulceration, but disease—of the agminated and solitary glands of the ileum. The enlargement of these glands, which goes on increasing till the tenth day, may then resolve, instead of proceeding to ulceration; but, unfortunately, it is impossible from the symptoms to decide which of these courses the intestinal lesion is pursuing, and ulceration is certainly the more common result. But the question naturally arises, and in fact is constantly put, as to what grounds there are for saying that in the cases of fever I have now described there is any intestinal lesion at all. Patients with these mild attacks usually recover; no opportunity is afforded of seeing the intestinal lesion; and if it gives rise to no symptoms, how do we know that it exists? The grounds for the opinion now expressed are these:—

1. Mild cases of continued fever answering to the above description are constantly found occurring in the same house, and at the same time, as well-marked examples of typhoid or enteric fever. The two forms appear thus to have a community of origin.

2. Many, though certainly not all, of the mild cases I have described present successive crops of lenticular rose spots, identical with those met with in typical enteric fever.

3. Lastly—and it is this important practical fact which chiefly justifies these remarks,—although the majority of these mild cases recover, it now and then happens that after several weeks such a case terminates suddenly in fatal hæmorrhage or perforation. Over and over again I have met with patients with a mild attack of fever, which has caused little anxiety, and in which the existence of intestinal disease has perhaps not been dreamt of until the occurrence of profuse intestinal hæmorrhage or acute peritonitis has revealed the real nature of the case. In several instances of this sort I have known the bowels to be obstinately constipated up to, or almost up to, the outburst of the fatal symptoms, which have occasionally appeared to be determined by the incautious use of solid food, by the injudicious administration of a purgative, and still more by the patient being permitted to get up and move about at a stage of the disease when a thin film of peritoneum was all that separated the intestinal contents from the abdominal cavity. Indeed, with regard to perforation in enteric fever, it has been a common observation, that in a large proportion of cases where it occurs the intestinal lesion has been latent, and the case altogether mild, prior to the occurrence of peritonitis; while anatomical research has shown that in many cases the perforation is due to a laceration of the denuded peritoneum.

[Since this lecture was delivered, I have met with a passage in Trousseau's Clinical Lectures, which so closely coincides with the opinion I have long held, and above endeavored to express, that I venture to transcribe it. In one of his lectures on Dothinenteria he observes:—"You have seen a considerable number of cases in which the general symptoms at first consisted only of a feeling of discomfort, lassitude, pains in the limbs, and a certain amount of uneasiness in the bowels; the tongue slightly red at the point and edges, covered with a thin whitish fur, was a little swollen, so as to show the marks of the teeth; there was anorexia, with little or no fever, and the pulse sometimes even below the normal frequency; the skin was somewhat dry, *and there were either no stools, or the bowels were as regular as usual.* We sometimes see our patients continue in this condition for from *twelve to thirty days without the symptoms being sufficiently urgent to oblige them to take to bed;* but at other times, after this stage has gone on for twelve or fourteen days, formidable symptoms all at once set in, it may be without appreciable cause, or it may be from indigestion caused perhaps by eating quite moderately, and then the disease declares itself by more characteristic symptoms, and with more or less severity. Well, in these cases of mild dothinenteria, to which the term 'latent' has been applied, you will have been able to verify the existence of the intestinal eruption quite as well as in cases attended by the most dangerous symptoms."*]

I could give you the details of many cases as evidence of the truth of what I have now said; but within the last few days you have had an opportunity of witnessing such a case for yourselves.

Case 6. *Enteric fever running a mild course up to the occurrence of fatal peritonitis.*—Thomas K——, aged seventeen, a painter, was admitted under my care on October 14th, 1870, and died within twenty-four hours. When first admitted he had all the symptoms of acute peritonitis—viz., features pinched, and body covered with a cold clammy sweat. Pulse 140; respiration 56, and thoracic; abdomen distended, tender, and motionless, and legs drawn up; frequent vomiting, and scanty urine.

The history obtained from his mother was this. The boy had followed his work till Oct. 7th, although for ten days before he had complained of being "out of sorts." He had no diarrhœa, and was not thought to be seriously ill; and, in fact, had kept going about until the afternoon of the day preceding admission, when he was obliged to go to bed on account of a sudden seizure with acute pain in the abdomen, followed by the symptoms for which he was brought to the hospital.

When the body was examined after death, numerous "typhoid ulcers" were found in the ileum of a stage answering to about the eighteenth or twentieth day of the disease. One Peyer's patch, twelve inches above the valve, had sloughed out bodily, leaving an opening through all the coats of the gut, through which the finger could be passed. The contents of the bowel were found in the peritoneum, and there were the signs of extensive recent peritonitis.

The practical lessons which I wish you to draw from the remarks I have now made are these:—

1. Even in the mildest cases of enteric fever, where there are no enteric symptoms, it is important to recognise the existence of the intestinal lesion, because at any time this may become suddenly a source of danger.
2. In all cases of enteric fever, during the third and fourth weeks, you must never omit to enjoin upon the patient's friends the necessity of maintaining absolute rest of body, and of abstaining from solid food and the use of purgatives.

Practical Remarks
ON THE
ARREST AND ERADICATION OF SMALL-POX.

By C. O. BAYLIS, M.D. &c.,

Medical Officer of Health, Birkenhead.

Tracings of small-pox for two months after its importation into Birkenhead. Thirty cases of the disease noted, including one death. The disease, though checked, still progresses. Remarks. Laws of the disease as bearing on its arrest and eradication. The practicability of its ultimate extinction.

The presence of small-pox remained undiscovered from its importation on May 15th till June 25th, on which date five houses had already become infected from the original focus. From the investigation then instituted, it appears that seven children and their mother, whose husband, William B——, rents the cottage, No. 46, Egerton-street, Birkenhead, were some time ago on tramp, and that one of the children sickened at Darwin, whence arriving at Blackburn, she was found to be laboring under small-pox. After the child had sufficiently recovered, they all rejoined their father in Birkenhead, about the 15th of May. Three more were then attacked, at intervals of about one week apart. All are now (June 25th) well or convalescent, but the crowded and pitted marks on their faces attest the completeness of the disease. All are *said* to have been vaccinated. The children got out of doors quickly, and played promiscuously with the others of the neighborhood.

June 17th.—Samuel P—— (35, Marion-street), aged twenty-two years, *said* to be vaccinated, was thought to be seized with measles, and sent to the parish hospital; it proved, however, to be small-pox. This youth tended his brother's cart-horses night and morning, at stables immediately opposite to the cottage of William B——, but is not known to have had any intercourse with the infected family. His house is about one-third of a mile distant from that of the latter.

June 18th.—Thomas D—— (17, Egerton-street), aged twenty years, *said* to be vaccinated, was pronounced to be suffering from small-pox, and sent to the hospital by the parish doctor. The dwelling in which he lodges is made up of two cottages, the one opening to the other, and accommodates the chief tenant, his wife and four children, two other families of three persons each, and one single lodger.

June 19th.—Elizabeth McL—— (73, Egerton-street), aged nine years, vaccinated, showed scattered eruption, some of which soon dried up. She is not confined to bed.

June 20th.—Sarah S—— (33, Egerton-street), aged five years, *said* to be vaccinated, showed the characteristic eruption, becoming afterwards confluent; died June 27th. The father, mother, and two children occupied the upper one out of the four rooms constituting the cottage, the other three rooms accommodating the chief tenant, his wife, and four children. All are Irish. The funeral was promiscuously attended by the friends who had held the usual wake on the previous night. An ordinary car was used to convey the corpse and attendants to the grave. Crape hat-bands were given out, and received back for further use into the general stock of the undertaker. The vigilance alone of the sanitary authorities ensured afterwards the renovation and disinfection of the vehicle and the destruction of the hat-bands.

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* Trousseau's Clinical Lectures. Translated for the Sydenham Society by Dr. Rose Cormack, vol. ii., p. 318.

June 20th.—Anne B—— (49, Egerton-street), aged three years and a half, *not* vaccinated, commenced the eruption, which became confluent. She is one of a family consisting of father, mother, and four children. The house comprises four apartments, the first of which serves as a shop, to which the neighbors or their children constantly resort.

June 22nd.—William McL—— (73, Egerton-street), aged three years, *not* vaccinated, was found to have the eruption, which afterwards became only moderately confluent. The dwelling has four apartments, and nine inmates, all of one family.

July 2nd.—John H. B—— (49, Egerton-street), aged seven years, *successfully* vaccinated six days before, was seized with the disease, which went through its course in a modified form.

July 5th.—Richard S—— (33, Egerton-street), brother of deceased case, aged three years, was *successfully* vaccinated on a *second* attempt along with three other children in the same house, about or on June 1st. Small-pox in a mild form and vaccinia each passed through their respective courses.

July 6th.—Mary A. McL—— (73, Egerton-street), aged eleven years, vaccinated, is found to be sickening; some scattered eruption is visible. Afterwards did well.

July 6th.—Robert E—— (58, Egerton-street), aged four years, *not* vaccinated; eruption confluent. Cottage contains four rooms, lodging one family, numbering eight persons.

July 7th.—Anne R—— (19, Lower Ivy-street), aged seven months, *not* vaccinated; eruption scattered. The dwelling *only fronts* in Ivy-street, being over a shop; and the entrance is through a foul back passage into Grange-street, which crosses the top of the first infected street—viz., Egerton-street. Family numbers seven.

July 9th.—George R—— (19, Lower Ivy-street), aged nine years, *not* vaccinated, was seized, and eruption became ultimately confluent. The three remaining children were vaccinated during infancy, and these escaped (Oct. 15th) the disease.

July 9th.—Mary L—— (54, Egerton-street), aged three years; eruption scattered; *said* to have been vaccinated. House has four apartments, in which lives father, mother, and three children.

July 10th.—Samuel B—— (49, Egerton-street), aged a year and a quarter, was vaccinated fourteen days previously; eruption scattered; disease modified.

July 11th.—James D—— (13, Carpenter's-row), aged eleven years, *recently* vaccinated; eruption scattered. House has four rooms, and lodges one family of eight. Carpenter's-row is the name of a court at the rear of, and connected only with, Egerton-street.

July 11th.—John M—— (Beckwith-street), butcher, aged twenty-two years, *not known* to be vaccinated; eruption confluent on the 17th, and his face a mask of pustules and scabs. Was hanging much about the infected neighborhood one evening about a fortnight before. His dwelling is about three-quarters of a mile from it.

July 14th.—Frank D—— (56, Egerton-street), aged six years, *not* vaccinated; eruption confluent. Out at play when vaccinator called.

July 15th.—Up to this date the following (with the exception of the last three, residing in Egerton-street) had also been recently attacked with the disease, and ultimately recovered—namely: Peter McL——, aged sixteen years, and Minnie McL——, aged eleven years, vaccinated; eruption scattered. Anne G——, aged five years, and Michael G——, aged three years, both *recently* vaccinated; eruption scattered. Eliza R——, aged three years, *recently* vaccinated; eruption scattered. John J. L——, aged eight months, *not* vaccinated; eruption scattered. Anne E. D—— (13, Carpenter's-row), aged fourteen years, *recently* vaccinated; eruption scattered. Hannah E——, aged ten years, and Sarah E——, aged four years (77, Jackson-street), *not* vaccinated; sent to hospital. Jackson-street is within a quarter of a mile of the infected Egerton-street, but is completely separated from it by a railway.

The disease had also by this time (July 15th) found its way into the adjoining township of Tranmere. No death from small-pox has been registered this year up to date in Liverpool, on the opposite side of the river, nor is it known that the disease exists there.

Remarks and conclusions.—Egerton-street is boulder-paved. Many confined courts open into it on both sides. The houses are old, many being rickety; all are crowded together, with little or no exterior ventilation. The street, however, has been improved by the conversion of most of its privies into waterclosets. The population partakes largely of the Irish element. Tramps favor the locality.

From an immediate inspection made of Egerton-street and its courts, it was ascertained that only thirty-six children, say under four years, were asserted to be vaccinated, while double the number were acknowledged to be unvaccinated. Under these urgent circumstances, the medical officer applied for immediate assistance to the public vaccinator (Dr. Braidwood), who promptly responded, and succeeded within two days in vaccinating more than fifty of the unprotected ones. He also vaccinated many in one or two other lines of poor, crowded streets thought to be in special danger. This prompt vaccination ultimately saved many lives. The other medical men of the town were likewise communicated with, and early vaccination suggested. The parish surgeons also exerted themselves greatly to this effect among the poor.

Extra scavenging, cleansing, disinfecting, and such modes of counteraction as the laws empowered or permitted, were of course put into immediate operation.

The following table gives the annual number of deaths from the disease during the two preceding epidemics of small-pox in Birkenhead:—

	Deaths.		Deaths.
1856	1	1863	34
1857	44	1864	123
1858	29	1865	37
1859	1	1866	1
1860	0	1867	0
1861	0	1868	0
1862	0	1869	0
		1870 (to Oct. 15)	1

The first invasion is thus seen to have caused 75 deaths, and lasted two years and a quarter. The first two cases occurred during the forty-fifth week of 1856 and the sixth week of 1857, the last during the fiftieth week of 1858 and the 6th week of 1859 respectively.

The second invasion caused 195 deaths, and also lasted two years and a quarter. The first and second deaths occurred during the twenty-fourth and thirty-first weeks of 1863, the last two during the thirty-sixth week of 1865 and the third of 1866 respectively.

The third (or present) invasion was introduced by the immigration of the infected family on May 15th, and the first death occurred in six weeks from that time; but within two weeks more it had already seized on thirty persons *at least*, and had established itself in not less than twelve different centres of infection, though no further death has as yet (October 15th) taken place.

The death point of view is not, however, the only one in estimating the evil consequences of the disease; every death implies also a much larger amount of serious illness, often of tedious convalescence, and sometimes of secret injury, which afterwards shortens life. In the present instance, where all the recorded cases were more or less serious, the proportion of the sick to one death was thirty; but, as all available means were put into active operation on its discovery, this proportion may not be a natural one. Under the worst hygienic and social conditions, with vaccination unknown, the proportion of sick to the dying possibly did not exceed the rate of two or three to one; while, with a better social and sanitary condition, and with the yet imperfect system of vaccination, this proportion is probably raised more to the average of other zymotic diseases, for which, under favorable circumstances and inclusive of slight cases, a proportion of twenty to one may not unreasonably be estimated.

Assuming, however, for small-pox a proportion within the limit of serious cases, say of twelve to one, we shall then find that the number of sick, in addition to the deaths, would be for the first invasion 900, and for the second no less than 2340, in a population varying within the period in question from 31,000 to 54,000 persons.

Such computations serve to give an idea of the prodigious amount of expense, anxiety, and loss of wage to the family, which necessarily falls, in the end, on the whole community. Confining, however, our attention to the loss from deaths alone, and assuming half the usual estimate of £200 per average life as the actual money loss, in consideration of the greater number of children involved, we arrive at the large sum of £10,000 as the loss to the locality for every hundred deaths. Now the average number of deaths per annum from small-pox in England and Wales during the ten years 1851–60 amounted to 4207. Surely these elements show enough of human anxiety, suffering, death, and money loss to the nation at large as will induce the Government to demand and obtain the necessary powers for a decisive abatement, if not the complete extinction, of this public pest. When cattle life and its comparatively small money values were recently swooped upon by rinderpest, governmental and legislative action were beautifully prompt and vigorous. Why should they not be equally active in the prevention of human suffering, in the saving of human life, as well as in the stoppage of an infinitely greater moral and national calamity?

That the laws of small-pox do admit of the disease being checked, and even eradicated in any given place, cannot now admit of doubt. Let us consider them in the light of these Birkenhead facts. Under *existing conditions* these laws are:—

1st. Small-pox cannot be generated spontaneously; the virus of a former case being essential to the production of a new one.

2nd. Small-pox sooner or later dies out in any given locality by exhausting the number of those susceptible to its infection.

3rd. Small-pox does not again make its appearance in the same locality unless by fresh infection from without, or possibly by disturbance of some careless or accidental conservation of virus remaining within its limits.

4th. Small-pox throws off from the cutaneous surfaces more débris for dispersion than other zymotic diseases; and this débris, being a carrier of the infection, renders it more progressively and certainly infectious than any of them.

5th. Small-pox becomes, with certain exceptions, a much milder, less infectious, and more manageable disease where the field of its invasion is completely preoccupied by vaccination.

If these laws are correctly enunciated, and but few will be found to dispute them, small-pox will always be running its course in a sufficient number of places to keep the disease fully alive throughout the country, unless suitable supplementary measures be in constant readiness to be promptly opposed to it whenever and wherever it makes its appearance or secures a footing; not only must the prophylactic of vaccination be ensured to every person, but it is imperative that every individual attacked be at once taken in hand, say, by a trained nurse, aided, if insisted upon, by any near relative under her control, while the remaining part of the household should be comfortably quarantined at the charge of the public for the requisite time.

There are no powers given by sanitary legislation as yet for *compelling* the separation of the sick from the healthy, and the only present way of partially doing this lies in the chance of persuading the very poor to accept the services of the parish hospital; but even this, as far as my experience goes, in Liverpool and Birkenhead, is effected with difficulty, while such a recommendation would be spurned and resisted by all the classes above them. No: whatever is to be done efficiently to stamp out this disease, must be done apart, in the town at least, from Poor-law agency, to which the independent poor have an honest, unconquerable repugnance, and the dependent poor often the strongest prejudice.

To overcome these obstacles successfully, it will be requisite to conform the necessary plans, including the compulsory powers, to the just rule that, where the rights of innocent parties are interfered with for the public benefit, such infringement should be as tenderly carried into effect as possible, and the proper cost be provided for out of the public funds.

With such powers and provisions, there would remain but little difficulty, on the occurrence of any case of small-pox, in the sanitary authorities at once removing all the other inmates of the dwelling to a comfortable quarantine station for the requisite time, and of isolating and curing the patient in the house, which, with the clothes, bedding, &c., could be effectually cleansed and disinfected before its further use. Treated in this just and considerate manner, no household—as now—would be tempted to persist in concealing the presence of a pestiferous disease, or reasonably—as now—object to the necessary means of stamping it out. Happy would it have been for the sufferers and their families, in the two previous attacks in Birkenhead, if the sanitary authorities could thus have promptly dealt with the first cases infected, and so have arrested all the further consequent disease and misery.

If, therefore, any plan for stamping-out small-pox or other zymotic disease is to prove smoothly and readily efficient, I repeat it, it *must not*, in our towns at least, be carried out by Poor-law authorities, but by some sanitary authority less repugnant to, and more popular with, the bulk of the people.

The fact that small-pox, like some other zymotic diseases, after culminating in progress and fatality, gradually fades away and disappears, except perhaps in the case of one or two of our very large centres of population, most clearly indicates the weak point in the armour of our zymotic enemy. In the case of small-pox he is already scotched by vaccination; but if the means suggested were always ready for prompt application, it could never re-establish itself in a town after once ceasing in it, and the whole country would ultimately be freed from its lurid presence.

The laws of disease are as certain as those of physics, though infinitely more difficult to elucidate, because of the excessive complexity of composition and forces of animal organisms in comparison with the simpler molecules and reactions of ordinary matter. Enough, however, is already made out to render it certain that small-pox and some other zymotic diseases can be eradicated from the land as surely as ague and malarious fevers have been by the general draining of marshes throughout the country. True it may be that cases will still be liable to get imported from abroad, or even arise again from the casual disinterment of some accidentally conserved virus; but the same method which had previously stamped-out the disease will again as surely annihilate the nascent invasion.

Birkenhead, October 15th, 1870.

Clinical Lecture

ON

INCONTINENCE OF URINE.*

Delivered at Leeds,

By T. Clifford Allbutt, A.M. M.D. Cantab.,

Physician to the Leeds General Infirmary.

Gentlemen,—A young woman has just been cured and discharged from ward No. 10, to whose case I shall now direct your further attention.

The malady under which she was suffering is one of a very distressing kind, and is by no means rare; yet it is one which, like some other functional disorders of the urogenital system, receives less than its proper share of attention, chiefly because the patients labor under a double shame which compels them to secresy. As in spermatorrhœa, for example, so in the kind of incontinence of urine which closely resembles it, there is a consciousness of pollution which makes it doubly difficult for them to speak freely on a function which under any circumstances is not easily discussed. For the same reasons I contented myself with pointing out the young woman to you in the ward, and deferred any further remarks upon her condition until I had the opportunity, which her absence now gives me, of handling it freely. Her history is as follows:—

Louisa T——, aged eighteen, has suffered from incontinence of urine at night for many years, as long indeed as she can remember. The recurrence is rather variable; sometimes she may pass a night or two nights without wetting her bed, but this relief is rare; as a rule, on awaking in the morning she finds her bed wet, and she has reason to suppose that expulsion of urine takes place on many nights more than once. This disorder is not only very distressing in itself, but is very injurious to her in her calling as a domestic servant. She came to us in despair on losing her last situation, scarcely hoping to be cured, but driven to seek some new remedy for a disorder which caused so great annoyance both to herself and all those about her. These facts were told to me in private by the girl and her mother when they came first to the hospital. Beyond the nocturnal incontinence I heard but little complaint of her health. The girl had certainly somewhat of the dull and downcast look we see in many epileptics, but she had not suffered from epilepsy. Her menstrual functions were normal. The family history was very imperfect. Every effort had been made to prevent the nightly discharge, but in vain. As in all such cases, the patient had avoided liquids during the latter part of the day, was most careful in emptying her bladder before retiring to bed, and very frequently she submitted to be called up once or twice during the night to pass her urine. In spite of these precautions, which were as fruitless in her case as in others of the same kind, the involuntary ejaculations still occurred during sleep. She believes that she generally loses urine twice during sleep—first about midnight, and the second time early in the morning. It does not appear, however, that she is a very sound sleeper, for her slumbers are easily broken when her mother awakens her for the purpose of natural relief. The long history of the case prevented the suspicion that any such irritants as worms, fissure of the anus, intra-vesical ulcers or calculi, were present: nor, on examination, could any such causes be ascertained.

Such is one example of a malady which is tolerably familiar to those who follow my out-patient practice, where we have generally five or six cases of it on our books. Children are the most common subjects of it; but not rarely it abides until early adult life, as in Louisa T——.

Now let us compare with the case I have just related to you the following, the notes of which have been placed in my hands by Mr. Drake:—Catherine J——, aged twenty-two, a domestic servant, was admitted into my wards during the summer vacation for general nervous debility. When admitted we were made aware that she also suffered from incontinence of urine. By day and night alike her water would dribble almost imperceptibly from her, issuing from the bladder in drops or jets so small that they defied the precaution of using the vessel. If she coughed or made other like efforts more considerable quantities would suddenly escape from her. The incontinence was no worse at night, but was rather less severe, unless by lying on her back she threw the weight of the contents of the bladder upon the neck of it; in which case she had discovered that the incontinence became excessive.

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* This lecture was first delivered about three years ago, and was repeated on Nov. 17th. The cases now related are, however, recent.

My last patient, Louisa T——, was, as you remember, treated and cured with belladonna. For Catherine J—— belladonna was never prescribed, but liquor strychniæ. In a few days she was thus enabled to hold her water for half an hour, and in a week she recovered almost complete power over the bladder. You will see at a glance, when the two cases are set side by side, how different they are, and how different are the means needed for their respective cure. If we seek a parallel to the case of Catherine J——, we find it in a case of incipient paraplegia now under my care in No. 10: this woman tells us that sometimes her urine escapes from her by day, and that she is always obliged to hasten to the closet the moment a sensation of micturition is felt, or she would find herself overtaken.

But in other cases of paraplegia you may remember that retention of urine is seen, and we have the fear of this dangerous event always before us in the continued fevers. In these cases incontinence, diurnal and nocturnal, may also be seen; and it does not then signify a continual escape of the secretion as fast as it is formed, but rather signifies overflow—the bladder being filled beyond its capacity. A careless practitioner who is unaware of this, and who is not awake to the duty of percussing the bladder daily in such cases of fever or of palsy, may by the neglect of catheterism become responsible for the death of his patient. Here the explanation is simple: the patient in fever is unconscious of the sensation which naturally calls him to micturate; in palsy he also wants consciousness, or he may want power in the muscular coats of the bladder.

If, on the other hand, we seek a parallel to the kind of incontinence seen in Louisa T——, we find it in the spasmodic ejaculations occurring in cases of incontinence of semen. It is a mistake to suppose that incontinence of semen occurs as a consequence of onanism only; it may be due to other causes, and occurs often enough in continent or married men. In both these latter incontinences we have the same element: a sudden spasm, with consequent emission. The fact of emission is of course an accident, the spasm being the primary element; and we find accordingly that in nocturnal enuresis spasm is made manifest when ever so little urine is present, and no doubt occurs at times when too little urine is present to make its effects very evident. You will see that this event then differs in no essential way from epilepsy. Like it, epilepsy tends to recur, in its earlier stages at least, by night; and if there be no secretion voided, it is merely because the muscles involved do not happen to be the continents of a secretion—a difference which is accidental only. Like it, too, nocturnal epilepsy is brought best under control by the use of belladonna.

Let us now consider what are the elements with which we have in all these cases, and in nocturnal incontinence especially, to deal. We have in the bladder two sets of muscular fibres—the one set called collectively the detrusor set, and the other called collectively the sphincter, the two sets being opponent. In addition to this, we have afferent and efferent nerves, connecting these muscles with the sacral plexus, and with a definite region in the spinal cord, which experiment and observation lead us to fix somewhere about the sixth dorsal vertebra, and there they are brought into relation by means of nerve-cells. Other fibres pass onwards to the encephalon, and establish consciousness of irritation, and also that regulating power over the actions of the bladder which endows us with the valuable power of voluntary retention and emission of urine. Supposing, then, that this machinery goes wrong, we have to seek the fault first in the structure of the bladder itself. Such faults do not, however, come under our consideration at present, as we are dealing, not with surgical matters, but with diseases of the nervous system. We shall, then, look beyond the bladder to its innervation, and any one of the following faults is possible: (1) There may be excessive irritation or irritability of the afferent nerves; or (2) this may be deficient. (3) There may be excessive irritation or irritability; or (4) this may be deficient. (5, 6) There may be one or other of these opposite states in the nerves communicating between the spinal and the encephalic centre. The efferent encephalic fibres exercise, I say, that moderating action upon the central spinal actions which between the medulla and the heart is called inhibitory; in the latter case the heart is regulated in obedience to the less complex variations of organic actions; in the former case the movements of the bladder are regulated in accordance with the more complex variations of animal actions. When a very powerful impression upon the encephalon paralyses these fibres, we have at once that spasm of the detrusor which we may see in a schoolboy brought up to be whipped. If, on the other hand, the encephalon remaining unaffected, the whipping be upon parts supplied by the sacral plexus, we have excessive stimulation of the afferent spinal fibres, and the same consequent tendency to discharge of energy in the urogenital system.* Worms or fissure in the rectum, uterine disorders, gonorrhœa, phimosis, or ulcers, calculi and acid urine within the bladder, act in the same way. Paresis of controlling encephalic fibres has then the same consequence as excitement of afferent spinal fibres; in both cases the detrusor urinæ, by excitement or by permission, overcomes the sphincter.† Again, if we have regard only to the local efferent nerves, we see that exhaustion of the spinal centre has the same result of instability as exhaustion of its encephalic ally and as stimulation of the afferent nerves. Onanism acts in this way, both in causing frequent daily micturition—*castus raro mingit*—and especially in allowing spasmodic emission of either urine or semen, when during sleep the tension of the weakened spinal centre is no longer reinforced by an active encephalon.‡ In paraplegia we often have both these causes at work. Communication may be broken between the encephalon and the lower cord in the first place, and the spinal centre may be weakened likewise, allowing of priapism, seminal and urinal emissions, and other evidences of instability, in which cases the incontinence is often nocturnal at the outset; or it may be palsied, allowing of the complete incontinence of flaccidity, both diurnal and nocturnal. It would seem that exhaustion of neighboring centres in the cord may spread to the genito-urinary ganglia;[*] for many men who, like Alpine climbers, exercise the legs strongly, but occasionally, are liable to irritability of the bladder, and to nocturnal emission of semen, during the first days of their holiday. When enuresis is due to the removal in sleep of part of the inhibitory action of the encephalon, we have by day what is called continence; but this continence is often imperfect, the patient being obliged to micturate frequently, and to answer the call quickly. Many healthy persons of nervous temperament, many women especially, have this degree of incontinence at night, although their resisting power by day may not be insufficient.

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* Ita, ut aiunt, solent impudici quidam invitam venerem vergis sollicitare.

† I should not of course advance these novel views unless I thought I had evidence in favor of them; but their proof did not form part of the present lecture.

‡ In such cases it is well known that, even in waking hours, a very slight additional irritation to the afferent (pudic) nerves will upset central tension, and cause seminal discharge.

This irritability of the detrusor is generally or always accompanied with ineffectual spasm of the sphincter also; in the female bladder this is readily demonstrated, and in young boys who suffer in the same way the penis is usually half erect during sleep.[†] But in that form of incontinence which is seen in continuous dribbling, we have to deal with the opposite state in both sets of muscular fibres; for, although the urine of such persons is ever escaping from them, yet, on the other hand, they are incapable of projecting it far on a voluntary effort. Dribbling differs from spasmodic incontinence in this—that it occurs as well by day as by night, that the subjects of it are never able to project a strong stream, and that, unlike spasmodic enuresis, it frequently takes place on a sudden exertion like coughing. Many women who have borne children, and whose parts are relaxed, become unable to hold their water when coughing. These cases, and the similar debility we often see in young persons, as well as in those of advanced life, are susceptible of a good deal of relief from the use of strychnine and also of ergot of rye, sometimes one drug and sometimes the other having the advantage.

The treatment of spasmodic or nocturnal enuresis is very different, and resembles closely that needed for seminal incontinence. Everything calculated to stimulate the afferent nerves of the sacral plexus must be avoided. The patient must avoid heating the nerves by taking care to lie on the side, and by the use of a mattress with light bed-coverings. It is right also, for the same reason, to prevent fulness of the bladder at night by abstinence from evening drinks, and by natural evacutions. In persons of this irritable or spasmodic habit, every eccentric cause of irritation to the afferent nerves—such as constipation, worms, uterine disorder, acid urine, and the like—must be removed; and, on the other hand, the tone of the parts must be restored by the systematic use of cold douches to the lower half of the spine. In bad cases a very small opiate or belladonna suppository acts like a charm in soothing the irritability. Especially must belladonna be given also as a medicine during the day or as a pill at bedtime. Children, as Dr. Fuller has shown, will bear belladonna in very large doses; and a little child suffering from nocturnal incontinence was pointed out to you on the last out-patient day whose malady remained untouched until we reached a dose of two grains of the extract at bedtime, when she found relief. Whether the belladonna be given at bedtime or as a daily medicine seems of little importance. Bromide of potassium, which seemed *à priori* a likely remedy, is quite useless. If you can add gentle local faradism to the cold douches, you will find great benefit arise from it: such, at least, was my own experience in two bad cases.

The general treatment needed in these cases is that needed in all persons suffering from instability of the nervous tissues; and as we sometimes find nocturnal incontinence in delicate, nervous children, often, moreover, associated with herpetic eruptions, seminal discharges, epilepsy, weakness of mind and temper either in themselves or in their near relatives, so we must never forget, by the use of our best "nervine tonic," cod-liver oil, of mild preparations of arsenic and of steel, and also of general hygienic measures, to restore that tone in which by nature they are deficient. In thus estimating your duty as physicians, gentlemen, I must, however, remind you that incontinence of urine very often depends on no constitutional habit, but on local disorders. In these cases the nocturnal incontinence is generally associated with more or less distressing diurnal irritation also. My surgical colleagues, and my friend Mr. Teale in particular, have, I believe, drawn your attention to the treatment required under these painful circumstances.

P.S—Since the above lecture was delivered a very interesting and important note has come before my observation by Dr. Thomson, of Peterborough. He was led empirically to recommend chloral as a remedy for nocturnal incontinence of urine, and apparently with great success. We have ample opportunities amongst our out-patients of trying this remedy; and if it answers in our hands as it has done with Dr. Thomson it will supersede belladonna.

Leeds, Nov. 17th, 1870.

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Clinical Lecture

ON

DISEASES OF THE BLADDER REQUIRING THE RETENTION OF A CATHETER.

Delivered at Westminster Hospital.

By Barnard Holt, F.R.C.S.,

Senior Surgeon to the Hospital.

Gentlemen.—During the last few months you have had various opportunities of witnessing the benefits that have arisen from the retention of the winged india-rubber catheter in the bladder in cases where the patient has been unable to micturate excepting through a tube; and I purpose to-day to draw your attention, among others, to the case of Charles R——, who is at present under my care in Matthew ward, as one specially illustrative of this method of treatment. Although on the present occasion I shall mainly refer to this case, yet I may mention that the treatment is equally applicable to cases of atony or paralysed conditions of the bladder, either associated or unconnected with enlargement of the prostate gland; and I may also add that, wherever a catheter can be worn, the flexible winged one is the most successful.

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[*] Dr. Handfield Jones, has suggested this weakening of a nerve-centre by exhaustion of its neighbor. Careful clinical watching of such cases would be a kind of experimental physiology.

[†] Herein I must differ slightly from the recently published views of Dr. Burney Yeo.

Charles R——, aged fifty-two, a traveller, was admitted under my care on August 8th, 1870. He had been frequently the subject of both syphilis and gonorrhœa, and for the last fourteen months he had experienced great and increasing difficulty in passing his urine, which is now loaded with mucus and pus. The desire to micturate is very frequent, and he cannot expel more than two tablespoonfuls of urine at a time. He has constant pain over the pubes and at the prostate, and also pain in the glans penis after micturition; and a purulent and bloody discharge exudes from the end of the penis. His aspect is careworn and anxious, and he is very much thinner. His nights are restless, and his general health is materially damaged.

An examination per urethram proved the absence of stricture. A large-sized catheter could be readily passed, but it produced great agony as it entered the bladder. The examination per anum proved the prostate enlarged, and it was very painful on pressure. An examination of the urine proved the presence of albumen, mucus, pus, and vesical epithelium. It presented a white filmy aspect, and was highly ammoniacal. About two ounces and a half of urine were removed by the catheter, and no greater quantity of warm water could be injected. A subsequent examination with a sound proved the bladder free from calculus.

Here, then, was a case in which the diagnosis was not difficult, but where the prognosis was doubtful. The examination with the sound proved the absence of calculus in the bladder. The symptoms did not warrant the conclusion that there was stone in the kidney, for in calculus pyelitis there is usually lumbar pain, increased by exertion, and the penis pain precedes micturition, and is always relieved when the bladder is emptied. In calculus vesicæ, or ulceration of the neck of the bladder, the pain is after micturition, and results from the empty bladder grasping the stone, or approximating the ulcerated surfaces. In this instance the introduction of an instrument produced intense pain as it passed over the neck of the bladder; and when that viscus was emptied, the suffering was greatly increased, but at once relieved by injecting a small quantity of warm water. As mentioned before, the urine was loaded with pus and mucus; and, to assist the diagnosis, it was necessary to ascertain whether this was secreted by the bladder or kidney. All the urine was, therefore, removed by the catheter, and the bladder was washed out with warm water until the water so injected came away clear. A small quantity of urine was now collected in a test tube, as quickly as it was secreted, and, when examined, only a trace of mucus could be detected; and so far, when taken in connexion with the abundant bladder epithelium, tended to prove that the disease was confined to the bladder and prostate. Thus the case was clear; chronic inflammation and temporary contraction of the bladder, with either abscess or ulceration of the vesical aspect of the prostate. There was no reason to believe, either from the history or the aspect of the patient, that the disease was malignant. With such a diagnosis the prognosis was doubtful; but the treatment was clear: absolute rest in the horizontal position, the retention of a soft and perfectly flexible catheter in the bladder, frequent removal of the fetid urine, injections of warm water after the urine was withdrawn, improvement of the general health by suitable medicines, and the use of opiate suppositories to relieve pain. And this was the outline of treatment adopted; and you have now the opportunity of seeing the result. The patient bears no longer an aspect of suffering, he has gained considerably in weight, his appetite is good, his functions properly performed; his bladder will now hold ten ounces of urine, which is perfectly clear, devoid of pus or mucus, and deprived of the epithelium, which escaped so freely before. There is, however, the anticipated drawback. He cannot empty the bladder without the aid of the catheter, and I fear he never will; but this is of little moment compared with his wretched state on admission, for, being now taught to pass his own catheter, he can relieve the bladder at will.

It is not, however, to cases of enlarged prostrate and its consequences that the use of the winged catheter should be confined. A very interesting example of retained urine, the result of atony of the bladder, has lately come under my care.

J. M——, aged sixty-five, who, excepting for his bladder ailment, was a moderately healthy man, consulted me for what was supposed to be irritable bladder. He stated that, in consequence of the peculiarity of his business, he had for some years habitually retained his urine for a longer period than was desirable. Two years previously to my seeing him he had retention of urine, and since that period he has been compelled to pass water every hour or hour and a half. The quantity ejected is very small, highly ammoniacal, and containing both mucus and pus. His health is now impaired, and for the last twelve months he has constantly worn an india-rubber urinal. An examination of his abdomen revealed a distended bladder, which was further confirmed by the introduction of a catheter, and the removal of two pints of fetid urine. I requested his surgeon to empty the bladder twice in the twenty-four hours, and decided when his urethra was less sensitive to introduce the self-retaining catheter, so that he might relieve himself at will. Unfortunately, in passing the catheter, his surgeon lacerated the prostate, which occasioned considerable hæmorrhage, and subsequent inflammation of the bladder. Rest, opium, and leeches to the perineum having subdued this, the winged catheter was introduced, and the patient was desired to remove the urine every four hours, and wash out the bladder with tepid water night and morning. The character of the urine speedily improved; it lost its ammoniacal fetor, and the mucus and pus gradually diminished. His health was gradually regained, and he is now so far well that he can resume his business. The catheter is removed once in ten days.

Most of you will remember the old man with paralysis of the bladder associated with hemiplegia, who wore one of the winged catheters for a period of five months. In his case the bladder was so small that it would not hold more than six or seven ounces of urine: so that it was necessary (previous to the winged catheter being worn) to draw off the urine six times in the twenty-four hours. Being incapable, in consequence of his paralysis, of passing a catheter for himself, he became a great tax on the house-surgeon; but after the winged catheter was inserted, no further trouble was occasioned—the nurse could remove the peg and relieve him without difficulty.

I could multiply these cases both from my hospital and private practice, were it necessary to do so; but I feel that the examples I have related to you are sufficient to show you that in cases of enlarged prostate, and atony or paralysis of the bladder, the winged catheter is of essential service; and in most cases it can be worn with but trifling inconvenience.

I will now relate an interesting case of numerous fistulous openings in the perineum and scrotum that was speedily cured by the retention of the catheter.

An officer in the Indian army, who had long suffered from stricture of the urethra, consulted me in consequence of the serious inconvenience occasioned by the urine escaping from numerous channels in the perineum and scrotum. He had suffered from extravasation of urine, and from abscess; and he was now compelled to sit over a large pan whenever he required to pass his urine. There were two fistulous apertures in the perineum, and one in the scrotum, and a fourth in the buttock.

At my first examination I experienced great difficulty in passing a No. 1 catheter. There was a tight stricture in the spongy portion of the urethra, which grasped the instrument with great tenacity. On my next seeing him I passed a No. 1 gum elastic catheter, which was retained, and in two days I was enabled to introduce the dilator, split the stricture, and pass a No. 9 winged elastic catheter. He suffered very little inconvenience from the operation, and he wore the catheter with ease. The urine now escaped entirely through the catheter, and he could remove it at will. After the lapse of a week it was withdrawn, and found to be slightly coated with phosphates. This was washed off, and the same instrument again inserted. To prevent the redeposit of phosphates he was directed to inject a weak solution of hydrochloric acid twice a day; and when the catheter was again removed it was free from any deposit. This gentleman continued to wear the catheter for a period of four months, when the fistulous openings had entirely healed. The instrument was then removed, and the urine flowed in a good stream. He was taught to pass his own bougie, and has returned to India perfectly well.

I have now related to you four cases as examples of different forms of disease in which the winged india-rubber catheter may be worn with advantage, and I wish particularly to impress upon you the fact that where a catheter *can be borne* the india-rubber one gives the greatest comfort, and secures to the patient the command of the bladder without the chances of its escaping, and without the necessity of its being fixed by tapes or any other contrivance.

I have used the expression "where it can be borne," because there are many cases where the retention of any instrument excites so much irritation that the patient cannot bear it, and in private I have found this more frequently than in hospital practice. Private patients, as a general rule, will not persevere where pain is occasioned, and they will not consent to remain in bed until the urethra and bladder become accustomed to an instrument. In hospital cases the patients are under more control, and you will often succeed with them when you cannot do so in private. On the other hand, there are a certain number of sensitive persons who cannot bear the retention of a catheter under any circumstances, consequently you must not consider this method of treatment as applicable to all. Where any other catheter can be retained there, the india-rubber one is infinitely to be preferred, but where the patient is specially sensitive, some other plan must be adopted.

To estimate the value of this kind of treatment you must inquire into the pathological changes that take place in the genito-urinary apparatus. Retained urine not only produces enlargement of the bladder and distension of the ureters and pelvis of the kidney, but disease of the kidney itself, and it is only when the bladder is enormously distended with urine that it can be acted upon by the pressure of the abdominal muscles, the contraction of which squeezes out a small quantity of urine, which gives relief for the time. But in cases where the bladder is hypertrophied and contracted, the patient suffers from absolute retention; the bladder has no power to contract, and no muscular force of the abdominal walls can assist it; and when we recollect that in addition to this, retained urine produces chronic inflammation of the bladder, resulting in not only decomposition of the urine, but a large secretion of mucus and pus, with shedding of bladder epithelium, we cannot be surprised at the fatality of such cases. The patient in very many instances not only endures extreme suffering, but he is continually poisoned by the absorption of the perverted urine, and gradually and surely dies.

I have hitherto only spoken of the mechanical means by which good can be effected; but, although it must be admitted that, in the main, mechanical means must be resorted to, yet great assistance is frequently obtained by the judicious administration of certain drugs. Copaiba is frequently very serviceable. Hydrochloric acid and opium may be prescribed with advantage. Quinine, where the health is failing, is especially valuable. But, whatever adjunct you may choose, nothing will supersede the removal of the urine and washing out the bladder with tepid water. I have occasionally used weak hydrochloric acid, or highly diluted carbolic acid; I cannot, however, say that I have ever seen any decided advantage from either, and I believe warm water is better than anything else.

The catheter is made of india-rubber, with wings to prevent its escape from the bladder, and is similar to that of which there was an engraving in THE LANCET some months since. It has the advantage of being self-retaining, and is indestructible; and it may be worn for any time without removal, provided it remains free from phosphatic deposit. To determine the special tendency to this, I always advise that the catheter should be removed at intervals, at first of four or five days, the intervals being gradually increased in accordance with the tendency to deposit; for while in some cases it may be worn for a month without any accumulation on its end, in another phosphates may be detected after the expiration of a few days. This rule should not under any circumstances be departed from.

In order to prevent this accumulation, I have latterly used the catheter with the addition of a highly polished silver cap, which not only facilitates its introduction, but certainly prevents phosphatic deposit in anything like the time that it will become affixed to the india-rubber. Mr. Baker is now making these caps, which will before long be ready for use.

Original Papers.

DELUSIONS AND HALLUCINATIONS.

By J. Hawkes, M.D.,

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It is commonly supposed that the insane are invariably subject to delusions; but in how many instances we fail to note the existence of either delusions or hallucinations must be known to all who have any experience in lunacy practice.

Hallucinations are not impossible to even sane persons, arising it may be from some passing functional disturbance of the system. When protracted, they may become the source of confirmed delusions, and usher in an attack of insanity. Hallucinations of the senses of sight and hearing are among the most common, though they have been known to be confined to taste and smell. The subjoined cases are compiled from the records of a large public asylum, the name and date of each being for obvious reasons omitted. They are mostly inserted in the order of their admission; and it is curious to observe how closely the delusions in some instances resemble each other, those of wealth and rank being most common.

J. B——. On returning from work in the evening a fire broke out in a house near his residence. He was prevailed on by his wife not to go out to see it. Next day he said he was glad he had not gone, as he learned that the fire was caused by a rocket thrown into the house for the purpose of alluring him into the street, where persons were waiting to seize and murder him. The following day he was depressed, but rallied, and for nine months gave no further evidence of insanity.

J. C——. Three years previous to the attack had a fit in the street, attributed to excessive heat and great mental anxiety. Was ill for some weeks, and then recovered, when it was observed that his memory was defective, and he was fidgety, irritable, and sleepless. Said that the sun and stars appeared together in the finament in the daytime, and that sometimes the moon appeared with them. Said he could contract with market gardeners, and open green-grocery shops all over London, and thus amass much wealth. Became violent and excited, and was taken by the police.

J. A——. Threatened to cut his wife's throat; broke furniture and crockery; talked incoherently; hesitated in speech; said he was rich, and had rich relations. Fancied that he could prevent the stone of the Houses of Parliament from scaling off, and wrote to that effect to several members of the Government. Bid at auctions without having means to pay deposits. Bet at races on the same principle. Was taken to the workhouse.

T. T——. Failed in business; fretted much, and drank to excess; became insane; was sent to the workhouse; and discharged in two months, recovered. Became a sheriff's officer; was put in possession of an hotel, on a warrant, where he remained for a fortnight, drank hard, became excited, talked incoherently; said that he had visions of hell and heaven; that he and his wife were both ill, and could not recover; that they were poisoned. Became restless and violent. Was removed to the asylum.

W. H——. Had a previous attack, from which he recovered. About six years ago, when perusing an old will, he fancied he was entitled to much property; consulted solicitors, but received no encouragement; became irritable; drank to excess; squandered his money; took articles out of the house to pawn; spent the proceeds improperly; was violent, threatened to stab his daughter, and was removed to the asylum.

R. P——; an itinerant lecturer in the employ of a temperance society. Had no occupation for the last nine months; was depressed in consequence; feared he should come to want; slept badly; took a great dislike to his relatives; talked incoherently; said he should go to hell if he remained at home; wandered about the streets for two days, shouting loudly and unmeaningly. Was sent to the asylum.

R. C——; a gardener. Complained of headache two years before the attack; became irritable and hasty in temper. Six months from that time he swooned suddenly when at work, and was unconscious for an hour. Shortly afterwards it was noted that he had lost his memory: forgot the directions given him, and paid no regard to the time of day; thought morning was evening. Talked of his wealth and large possessions, his horses and carriages. Became imbecile; wandered about the country; was found by the police, and brought to the asylum.

A. T——; a baker; member of the Baptist persuasion. Fretted in consequence of ill-health. Said he was under the influence of evil spirits, and that they would kill him. He often cried out "Be gone!" and moved the handle of a broom rapidly backwarks and forwards for an hour or more, continually crying out at the same time, in a loud voice, "Down, down to the bottomless pit! I use the sword of faith!" He said the spirits told him he must drown himself. Lately he had a severe fit, and was brought to the asylum.

D. M——; a butler. Went with his master to Scotland last season, grouse shooting. Appeared well, and conducted himself rationally till Michaelmas, when he became restless and unsettled. Said there was a conspiracy among the servants to poison him; in consequence he took food sparingly, and at last refused it altogether. Returned to London. Went to his friends; but, in consequence of his strange manner, they refused to receive him. He said there was a conspiracy against the Queen, and that he had met and stopped the train containing the conspirators, and so foiled their design, and that these persons were in pursuit of him, and would kill him.

J. H. P——. Was in a railway accident from collision. Was taken in a state of unconsciousness from under the dead bodies of his fellow-passengers and the fragments of carriages. Was under medical treatment for three months. Resumed his work at picture-frame making. Was forgetful, dull, and heavy. Became excited and violent. Fell apparently in a fit; recovered. Talked incoherently. Said he had been in heaven, and seen God; believed him to be a kind-hearted, liberal gentleman, who had given him everything he wished for.

J. D——; hatter. Steady, sober, and industrious. Failed in business. Became affected in mind on unexpectedly seeing the dead body of his father-in-law. Said the death occurred from poison, and accused his brother-in-law of the deed, also of endeavoring to poison him. Soon after he affirmed he could receive and answer questions from the most remote parts of the world, being himself a telegraphic machine.

W. C——; cab proprietor. Was kicked by a horse in his stable; remained unconscious till the next day. Complained ever since of headache and giddiness. Three years afterwards talked incoherently and boastfully. Said he was rich, and that he should buy cabs and horses. Complained of numbness in his hands. Became excited and violent; neglected himself, and threatened to commit suicide.

C. S. R——. Has been twice previously in asylums. A year previous to this attack he became morose, shunned society, disliked his relatives. Was at times violent and destructive. Said he was Jesus Christ, the son of God; that he could perform miracles; that he was as strong as Sampson, and could destroy all opponents.

G. H——; gardener; a Wesleyan, of sober, steady habits. Took to sitting up late, reading books on horticulture and religion. Remained at his work all day without taking meals. Was reserved and depressed. Said his master disapproved of and would dismiss him; that there was a conspiracy against him; that his fellow-servants intended to murder him and his wife. Gave up his situation; took a lodging in the village, refused food, became violent, and was brought to the asylum.

T. W——; a grocer. Failed in business; fretted; became violent; talked incoherently; said that the devil was in quest of him, that his cousin was Satan, and that he should kill him to relieve the world of a perpetual nuisance. Attempted to choke himself.

C. B——. Complained of headache and giddiness, and inability to sleep; became irritable in temper. Said he was watched, that he was accused, and that spies were following him about. Walked the streets at a rapid pace, and said to those whom he met that he understood telegrams, that he understood them better than Sir Richard Mayne; that he understood his master's business as well as himself, and the business, thoughts, and feelings of all persons by means of them. Declined to do his duty as a coachman; said better things were in store for him; became excited and violent.

W. H. A——. Said the police were constantly following and watching him. Began to have elated ideas; said he was in high estimation with the public, that a subscription was being raised to purchase an estate for him, and that he was divorced from his wife and married to the Queen. He went several times to Osborne and Windsor to see Her Majesty; failing this, he wrote letters, which were placed in the hands of the police, and he was arrested.

G. B——. Fretted at a disappointment in love; became insane. Went to his friends, and got a situation as a servant. Wrote letters to the Queen, which he delivered at Buckingham Palace and Windsor, representing himself as a Prince, and proposing for one of the Royal Princesses. Injured his head from a fall.

G. L——; a porter at an Italian warehouse. Two years ago said he was a person of importance, and must take a prominent part in the settlement of the Reform Bill; fancied that the Queen had become a Roman Catholic, that all his friends and neighbors had done so, and wished him to become one. He said electricity was practised upon him for this purpose; that the Queen wished him dead, in order that his wife might marry John Brown; and that he was to be poisoned. Threatened to murder his wife and children, and consequently was brought to the asylum.

W. J. W——. Did not go to bed for two months; talked of suicide. Said he was possessed of wealth and talents; that he is Prince of Wales, and that the Queen is his sister. Invited the magistrates and gentry of the neighborhood to a rat-hunt. Attempted to set fire to the house, and was removed to the asylum.

G. C——. About four years ago complained of headache and giddiness; slept badly; had loss of appetite. Came home one night much frightened; said he saw the devil. Was timid the next day; said he saw persons following him, and heard voices saying, "Don't enter that house; you may enter this. Walk at the right side of the street, not at the left." He became gradually better; however, the hallucinations returned. He grew violent, and was sent to the asylum.

W. L——. In active business as a merchant. Became very weak and disinclined for business. Suffered from headache, giddiness, and pains in the limbs; attributed to anxiety and overwork. Frequented houses of worship; was reserved; said electricity was discharged at him by some invisible agent. Addressed letters to the Chancellor of the Exchequer, the Prime Minister, and others, demanding compensation for these wrongs. Used strange expressions; threatened violence; and was removed to the asylum.

G. W——. Of steady habits, constant in attendance at church, and spent much time in reading religious books. Served as a soldier in the Crimean war; returned to his previous occupation as an agricultural laborer; became involved in pecuniary difficulties; was depressed; talked incoherently; became violent and noisy. Said he was authorised by apostles, angels, and holy spirits to preach the gospel; that he was to be a second Messiah, and appointed to save the world.

W. R. R——. Talked strangely and in a most unconnected manner from one subject to another. Said that a clerk of the Parcels Delivery Company's office sent him to a baker's shop for a loaf of bread for the Queen. Said he was dying, and asked his mother to look at his hands as a proof of it. Said his brother imitated the Duke of Edinburgh in gait and dress, and unless he desisted he would be sent to the Tower for life. Shut himself for more than a year in his room; sat up all night writing poetry; stayed in bed all day. Said his food was poisoned.

J. M——; Baptist; a commission agent. Has been declining in mental power for three years. Took to reading the Scriptures and religious books to excess. Has constantly said for two years he has committed a great sin, for which he was being punished. Complained of headache and giddiness. Slept badly, going from room to room, flying, as he said, from the vengence of the Almighty; that God would dash him to pieces with a thunderbolt, and hurl him into everlasting perdition. At length he had a fit, was insensible for two days, and was sent to the workhouse.

J. J. M——; Roman Catholic; glazier. Read books of a religious character. Three years ago he felt a strong desire to become a priest, and expressed it to the clergyman of his chapel, who placed him at a seminary, whence after two years he was sent home, stated to be of unsound mind. Was for several weeks depressed; afterwards violent and noisy; shouted loudly; talked incoherently; blew his breath upon persons, and said he had authority from the Almighty to do so—that they would become as he was, inspired—that he was a priest annointed of God. At length, being intractable, was sent to the asylum.

D. P——; a Jew; dealer in glass. Suffered from headache and giddiness. Three years ago had an apoplectic seizure, from which he recovered and resumed his business for two years, when he began to make mistakes in his accounts, omitted to make entries, and gave credit indiscriminately. He then fancied persons were concealed in his house in order to kill him; entertained delusions as to wealth; said he was rich and should build a fine house; bid at auctions for expensive furniture, gold and silver ornaments, &c.; ordered splendid dresses for his wife; walked about the streets; lost his way; picked up cinders, chips, and pieces of paper; went into fruit-shops and took goods without paying for them.

L. C——; a baker. Formerly intemperate; has been latterly sober and steady. Failed in business; fretted in consequence. Had headache; slept badly; walked the house at night; memory failed; lost his way in the streets; could not recollect his address; stammered; talked largely of his wealth and prospects; said he should pull down his house and rebuild it on a larger scale, also he should build others; put cinders into the oven, saying they would melt into precious metals; filled bottles with dust, calling it gold-powder.

G. B——; a gas inspector, in constant employment. Suffered from ill-health. Became anxious in consequence of the increased work in connexion with the entertainment to the Belgian Volunteers at the Agricultural Hall. Was unsettled. Slept badly. Left home suddenly, after having spent several hours in poring over accounts. Returned the next night, and altered one figure in the account, stating that the calculation had occupied his attention that day and the previous night, to the exclusion of everything else. He was depressed, and accused himself of not doing his duty, of receiving money without earning it, &c. Fancied he was followed by persons with a warrant to arrest him for taking money without deserving it. Continuing in this way, he was sent to the asylum.

H. C——; glasscutter. Has suffered from a decline of business in consequence of the introduction of moulded glass, and was compelled to work in the docks. Earned but little, and fretted at his poverty. Said England was overrun with foreigners, and trade ruined by the abolition of Protection duties; that persons in the streets were French spies sent over to organise an invasion. Attempted suicide. Complained much of headache and giddiness, rolled his eyes, and was excited. Talked incoherently and boastfully of his wealth and prospects. Frequented places of worship, contrary to his habit. Said he was a prophet sent from God to warn the people that the world was coming to an end. Refused to eat or drink for fear of being poisoned by foreign invaders, whom by inspiration he recognised and was able to destroy.

G. F. M——. Four years past complained of headache, giddiness, and weakness; became reserved and depressed. Medical aid was resorted to without benefit, and his mind failed. Became fretful and irritable. Talked incoherently, chiefly on religious subjects. Said he had been up in heaven and come down again. Walked into a pond on Hampstead-heath, and wished his wife to go there too, as "a way to heaven." Was out all night wandering about. Said he was very rich, and that Lord A—— intended to bequeath to him the whole of the British dominions.

G. M. N——. Fancied that his wife intended to poison him, and had put something into the teapot for that purpose; that his neighbors meditated his destruction, and were "setting the devil upon him." He would shout "Murder!" from the windows, and call for the police to protect him.

H. C——. Had delusions that he was robbed; that the house was entered by thieves, who broke open his drawers, stole his clothes, &c. He used daily to open the drawers, take out their contents, and put them in other places; after some hours, unlock the drawers again, and, on seeing them empty, say the articles were stolen.

T. L——. Had yellow fever in New Orleans; recovered imperfectly; jumped into a river; was sent to an asylum; discharged, and sailed for England. Manifested mental aberration on the voyage; fancied he was charged with a grave crime, and that the police were in pursuit of him. After arriving in England, said that Mormonite agents were in quest of his wife, and emissaries from houses of ill-fame were seeking for her. Heard voices from the wall talking to him, and applying opprobrious epithets to his wife.

G. A. N——. Having been told that a copy he he had made of the picture of Christ was very like himself, he took up the notion that he was Christ; and has several times written to the Queen and others of the Royal Family, signing himself "Jesus Christ."

W. B——. Used to write letters to clergymen and others, saying he was deprived by them of his rights, kept out of property, persecuted and even crucified. Said he was a person of high station, the Saviour of the world; that he had holes in his hands and feet through the nails passed when he was fastened to the cross.

J. S——; a coachman; sober; of delicate health. Suffered much from headache; giddiness increased; and he had a paralytic stroke. Recovered his speech, and resumed his application. A year after had a second seizure; became incoherent. Spoke of his wealth. Said there were railways in the air; that all objects were of one color—viz., green; and that he saw things come out of his eyes when asleep.

E. C——. Suffered much when a soldier in the Indian mutiny; was overworked and exposed to great heat. He began to fancy his comrades conspired against him, and attempted to poison his food. Said that vapors of a noxious character were raised before his eyes. Upon returning to England he said he heard the old woman shouting after him who had followed him from China; and that his bowels only acted under military orders.

W. M——. Excessive fatigue and hard labor are thought to have disturbed his mind. Became childish; collected stones, placing them in his pocket; plucked flowers, and fixed them in his hat, saying they were stars. Called a cow a horse, a dog a cat, &c.

W. R——; a gardener. Went one day to his wife, gave her the key of the garden, saying "he had done his work for ever; that he had amply provided for himself and his family." Told his mistress the next day that he should buy a handsome carriage, and drive her about; that he should make her Empress of the French.

E. L——; a graduate of Oxford; contemplated taking orders. Was reproved for levity by the bishop, whom he had called upon with a view to that object. Became negligent of his person; sat gazing steadfastly at the fire; was taciturn; indifferent to food; did not read. Had previously exhibited similar traits at Oxford. Subsequently he carried an open penknife about with him; attempted to injure his mother with a "life preserver"; said he heard voices, whisperings, and sounds of persons following him.

J. J——; aged sixty-eight. Disabled by illness from following his occupation; fretted at this; passed restless nights; walked up and down his room. Said persons were opposed to him, and desirous of ruining his reputation; that the food placed before him was not paid for, but stolen; that if he partook of it he would be arrested. Every knock he heard at the door he thought was that of a policeman. Attempted suicide.

T. W——. Was habitually odd in his conversation and deportment. Thought he could alter the weather by regulating his diet, and by the same means could change the disposition and conduct of other persons. Slept badly; said he had pins in his head, and that he had swallowed needles; that persons living in the room above were admitting cold and hot air upon him through the ceiling.

J. H——; sheriff's officer. Said persons were meditating his own and his wife's destruction; that they were to be poisoned; that his neighbors were spies; that they overheard all he said. He therefore spoke only in whispers, so as scarcely to be heard by those in the room with him. His actions were surrounded by a good deal of mystery and secresy.

J. A. C——; aged twenty-nine; generally steady and temperate. Has suffered from twitchings of the face from childhood, and has always complained of headache. His mind has been affected for the last three years, during which time he has constantly said that he had a disagreeable smell, as though something very offensive was present in his nostrils. Thought he was being bent backwards, and felt a burning pain in his spine. Said he must kill some member of his family, and pointed out to his mother the place where he meant to put her body, in a pond near the house.

J. P——; Wesleyan. Was in the habit of reading religious books till a late hour after returning from his day's work. A short time ago his mind became affected. He was timid, and said there were ghosts in the house; that robbers were concealed in it; that he knew persons were prowling about the neighborhood night and day, intending to injure him, and determined to snatch him up and run off with him.

A. E——, aged twenty-six; a commercial clerk, on a very small salary. Fretted at the narrowness of his income. Had been, when a boy, often uneasy and perplexed about his parentage, having lost his father in infancy. Often asked his mother, with earnestness, whether he was the son of a peasant or a prince; sometimes fancied that his guardian was his father. Three years ago he began to manifest symptoms of insanity: said that one of his children was not his; that his wife was unfaithful; that she was plotting his destruction and endeavoring to poison him; that she put something into the water in which he washed to thicken his skin and render it coarse, that he might not appear to be what he was, a person of high rank. Gave up his situation under the impression that his employer held funds in trust for him, and that the amount would be retained so long as he continued in his service. Was alternately depressed and excited. Went to Windsor and left a letter at the Castle for the Queen. Styled himself "Prince of Wales" and "Duke of York." Said that the officials in the workhouse darkened his skin, and that people in the street aimed at his life.

J. W——. Suffered from pecuniary embarrassment; fretted at this. Was afraid he should be sued, put in prison, and come to beggary. Passed sleepless nights. Stayed half the day in bed. Said someone was constantly striking him about the head. Fancied he saw evil spirits, and that he was going to hell to whitewash the devil.

W. E——. Was dismissed from his employment. This preyed on his mind; he became violent and excited; said he should be king; that he was the Saviour; a prophet; that he was to reclaim and redeem the world; took red-hot coals in his hands; said they could not hurt him.

L. H——. Was always idle, unsteady, and dissipated; given to stray from home and wander at large. Has lately talked incoherently, and boasted that he possessed large estates in Yorkshire; that he is Marquess of Bulstrode, Earl of Holderness, and King of Scotland. Proclaimed himself by this title at the Princess's Theatre; and on another occasion presented a pistol at a lady and gentleman in a box at Covent-garden Theatre. Wrote letters to the Queen, offering to come to terms respecting his kingdom of Scotland.

T. R——. Had a quarrel with his wife; broke up his home; sold off the furniture; spent the money in dissipation. Was reconciled to his wife; told her she had raised a rebellion, caused an insurrection, and must be put to death.

B. B——. Has complained for a long time of headache and weakness. Has been incapable of applying himself to his business as a shopman. Spoke incoherently; said he could read persons by their eyes; stared hard at the customers in the shop. Said that a dog in the house was a fiend pursuing him.

C. W——. Fell off an omnibus eight years ago; was taken up insensible; remained unconscious for several weeks. Had a fit a fortnight after. Partially recovered. Resumed his occupation. Had fits more frequently of late; was giddy; talked incoherently; said the clock was wrong; that it was night when it was day; that there were rats in his cap; that he could not see in consequence of the number of flies in the air.

E. U——. Became depressed and reserved. Said there was a mouse gnawing at his heart, and it would devour him altogether.

W. J. R——. Drank hard formerly. Has been temperate of late. Did not succeed in business; fretted on this account; passed restless nights; became excited; said he was the second Saviour of the world. Threw away his money; said it was not right for him, a divine person, to hoard up wealth.

T. B——; a laborer; sober and steady. Has been latterly in the habit of reading the Bible and religious books; sitting up late at night, depriving himself of rest and proper sustenance. Said he could influence the course of the sun and the motions of the heavenly bodies.

E. W——. Suffered from ill health, and fretted in consequence. Said the Lord had been with him all night and converted him, and had performed a miracle upon him by enabling him to see without spectacles, which he had worn from his youth; that he had amassed a fortune, and should become a minister of the Gospel.

T. K. G——. Said he was dead. Rolled himself up in sheets as if in a shroud, and desired an undertaker should be sent for to measure him for a coffin; said it must be a large one, as he had grown to a great size.

H. B——. Became violent. Talked incoherently. Said he was the son of Garibaldi—the Son of God; that he had been crucified, and was the Saviour of the world; that he could see from London to Haslar Hospital at Portsmouth.

E. E——. Became insane from domestic grief caused by the misconduct of a sister to whom he was much attached. Said he was in hell; that there was a large clock there; that it had seven hands, five of them being his children, and the other two his sister's bastards; that they were all pointing at him, and would soon get him into their clutches and tear him to pieces.

T. E.——. Said his wife and children were in hell; that his house and effects must be burned, as a penalty upon him for not having told the truth to Jesus Christ in a conversation he had with him.

J. C——. Passed several sleepness nights. Was restless and uneasy for many days. Said he saw imps flitting in the air.

G. N——. Being much depressed, he began to have delusions. Said that the sheet of his bed was his shirt; that the quilt was his trousers; that he caught birds in his bed—a goldfinch, a canary, and a lark. Took up pieces of rags, saying they were pigeons and crows. Folded up the carpet of his room, saying it was a railway.

R. T——. Said he was followed from place to place by police and soldiers; that men were in the house with handcuffs to arrest him; that the house was filled with rats; that he saw the devil. Attempted suicide.

J. B——. Was in St. George's Hospital for a severe attack of rheumatic fever. Said the nurse of the ward was attempting to poison him; that a coffin was ordered for him; that a patient in the next bed was abetting the plot; that poisonous fluid was injected into him.

J. J——. Was in St. Mary's Hospital for an affection of the heart. Fancied that he should be burned in the hospital; that one of the patients in the same ward was constantly watching him and taking down his words; that others were peering at and listening to him. Slunk into corners, and only spoke in whispers.

C. W——. Entertained exalted ideas of himself and his circumstances. Said he was rich; that he was about to build a fine house; that he should keep a carriage and spirited horses; contract a splendid marriage; that he was raised to the peerage with the title of the Duke of Leeds; that he had direct personal communications with the Almighty.

R. B——. Became epileptic on the failure of some mining speculations. During the occurrence of the fits he fancies he is a stag. Leaps about the room, &c.

J. L——. Was unsuccessful in business. Fretted at this for several weeks; then began to have delusions. Said he saw a coffin in his room; in consequence of which he refused to go to bed; said there were ghosts in the house, and a strong smell of human blood.

J. H——. Suffered from headache, giddiness, failure of memory. Said there was a little man in his head, and that he must cut him out by taking off part of the skull.

O. M'C——. Said he dared not shake hands with anyone; that he was a divine being, just come down from heaven; that he should not remain long upon earth, but must go down to hell to see how things were going on there.

J. W——. Spoke in a religious train. Said he was commissioned by the Almighty to preach the gospel; that God had appeared to him, and told him that he should convert the world, and should not die before mankind were brought into the fold of Christ.

C. S——. Became affected in mind in consequence of seeing the body of a man suspended to a beam in a house which he was employed to force open. Said that Jesus Christ was coming to whitewash the house, and it must be got ready for him; that the Almighty had given him power to destroy the devil; that Hampton-court Palace belonged to him; and that he had a large sum of money in the bank.

W. G. M——. Came downstairs without his clothing, and said the Almighty had told him to do so. A week after he rushed into the Serpentine with his clothes on and a carpet bag in his hand. Said he saw strangers in the house, and among them a man with a peculiar cap, who was the devil; that he heard voices desiring him to do such and such things; that he was a prophet.

Such are the fantasies of imagination,—the grotesque distortions, the broken lights, reflected by an unbalanced mind.

Hanwell, Nov. 1870.

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CARDIAC IRREGULARITY.[*]

By J. Milner Fothergill, M.D.,

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Cardiac irregularity is a symptom next in frequency to palpitation, but perhaps, in import, more generally understood and agreed upon. Cardiac irregularity is a more marked disturbance of balance of powers than palpitation, and is more confined to chronic evidence of cardiac inability, though still oftentimes associated with the innervation only. It is thus associated with palpitation naturally as well as diagnostically; the two run into each other, now and then inseparable, and at other times distinct.

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[*] This is a continuation of the subject commenced by the article "Palpitation, its Diagnostic Value," in The Lancet.

It will perhaps help to elucidate this confessedly complex subject, and to render the evidence and argument clearer to those readers who have not made cardiology a special study, to review the normal mode of action going on in the heart. The heart is a collection of bundles of organic muscular fibre in layers, the number of which, according to Pettigrew, is seven. The outer ones run into the inner ones: thus 7 is continuous with 1, 6 with 2, and so on, whether you commence from inside or outside. The more superficial layers run more from base to apex; the central layer runs round the ventricle almost like a zone or girdle. Each bundle, or morsel, of muscular fibre is under the control of a minute ganglion of nerve-matter—part of the organic system of nerves. When then the fibres are put on the stretch, and distension is produced, contraction follows; according to the known law of hollow contractile muscular structures, from the heart to the bladder. Schiff first observed that the contraction of this mass of involuntary fibre is vermicular, and passes swiftly onwards; this onward motion being so rapid as to convey the impression of a simultaneous contraction. This observation is corroborated by Valentin, Drummond, and other recent observers. In fact, there is a strong presumption that the heart is a folded mass of organic fibre-tubing, both in its anatomical structure and its physiological function. As, however, in an organ of such important function as the heart, irregular, though rhythmical, action would be very inconvenient, on account of the necessity for aortic distension and systole to complete the onward flow of the blood, a second nerve influence, possessing a co-ordinating action (von Bezold), is implanted on the first. The pneumogastric nerve exercises this co-ordinating or inhibitory action; and by galvanising it the brothers Weber found it possible to retard the heart's systole, or even to bring it to a final standstill in diastole. Thus, when the distension of the increasing volume of blood excites the auricles to contraction, the auricles contract in the direction of the ventricles, and produce the over-distension provocative of contraction; the action of the pneumogastric retarding the systole till, to use a homely expression, all the fibres are ready, and then ensues a uniform and almost synchronous contraction.

Thus the distension of the accumulating contents is the force against which the muscular fibres act, under the control of the sympathetic ganglia, *plus* the retarding action of the vagus. The forces in health are balanced: thus the opposition of the blood, or the vis inertiæ, is set against the muscular powers; the sensation of distension against the irritability of nerve ganglia, controlled by the vagus. Any disturbance of balance in either may produce irregularity of action. Between these subtle balances the heart rocks away in a manner somewhat analogous to a ship's chronometer. In addition to these are accelerator and depressor nerves, about which we do not yet know much, and which are not necessary to the question here under consideration—namely, cardiac irregularity; in time, not in volume.

This is an important distinction. Irregularity in volume is the concomitant of mitral regurgitation. At each ventricular systole more or less blood passes back through the left auriculo-ventricular valve, which has become imperfect. Why more blood should pass backwards at one time than another, it is, in the present state of science, absolutely impossible to determine. It is probably connected with more or less efficient action of the musculi papillares. This irregularity in volume is pathognomonic of mitral regurgitation, and often assists materially in the ready recognition of the valvular lesion. Certainly, in some advanced conditions of cardiac dilatation, the irregularity in time is also accompanied by some irregularity in volume, according as a more or less perfect ventricular contraction has taken place. Cardiac irregularity in volume is not the subject under consideration here; it is rhythmical disturbance, irregularity in time, we have to do with.

We have then, in health, the heart rocking away rhythmically between its various balancing powers.

A. The vis inertiæ of the blood=the power of the muscular walls.

B. Distension=the irritability of the organic ganglia + the inhibitory action of the vagus.

C. Balance of power between the irritability of the organic ganglia and the controlling or inhibitory action of the vagus.

We also have the disturbance of balance occurring in these three different modes, which it may be desirable to consider seriatim.

A. Disturbance of balance betwixt the vis inertiæ of the blood and muscular walls—i. e., of the blood to be driven and the power to drive it. This may occur in two ways: increase in the opposition of the blood, as when its chemical constitution is altered, as in Bright's disease, carbonic acid poisoning, or when the relations of it and the endarterium are affected, as in atheroma, when there is also loss of arterial elasticity; or failure of power in the muscular walls primarily, as in malnutrition of them, or over-taxation from prolonged effort. Under the first head come chiefly the functional disturbances resulting from organic change in the kidneys. It was supposed for long that the blood, altered in its chemical properties—that is, laden with the products of histolysis,—passed along with difficulty through the arteries; that there was, in plain English, increased friction. Dr. Geo. Johnson has shown that there is a presumption in favor of the walls of the arterioles being thickened, and even demonstrates that thickening to exist in the muscular tunic, and that these thickened muscular tunics act against the action of the ventricular systole and impede the flow of blood. Whichever view is the correct one, the fact remains unquestionable. When the blood is laden with carbonic acid it has a greater affinity, as it is called, for the endarterium, and flows less rapidly. To counterbalance this condition of impeded flow, we have hypertrophy where the patient's restorative powers are equal to it; where insufficient, dilatation results. Palpitation, and, still more, rhythmical irregularity, are the evidences that the compensation is incomplete.

The second condition under *A* is imperfect action of the muscular walls. This may arise from coronary atheroma, or simple innutrition; as, for example, in general malnutrition, if accompanied by necessity for exertion, we find the muscles most in action waste first, and, *primus inter pares*, the heart. Excessive exertion in one not gradually prepared is found to overtax the heart, and is common among athletes—boating-men, gymnasts, &c. The muscles crossing the arteries impede the flow: this is the "musculo-cardiac function" of Wardrop. When, then, violent and prolonged muscular effort is indulged in, the obstruction to the flow of blood leads to imperfect ventricular contraction; distension, if prolonged, to dilatation, and the evidence of disturbed balance—viz., irregularity of action.

What is the mode of this disturbed rhythm, this irregularity in time? The heart's contraction on its contents is, as stated above, not a synchronous contraction, but a vermicular or peristaltic action passing from one layer of fibres, or fold of organic fibre-tubing, to another, co-ordinated by the regulating or inhibitory action of the pneumogastric. This normally goes on with the utmost regularity from day to day and week to week: so many beats per minute (60) in the recumbent position, so many more (70) in the sitting posture, and so many more again in the erect posture (85), accelerated by excitement or physical exertion. Its mode of action runs thus:—During the diastole the blood is poured from the distended veins into the auricle and ventricle; the distension of the auricle excites contraction in it; its contraction leads to still further ventricular distension until ventricular contraction is induced. The contraction of the auricle opposes the backward flow of blood from the ventricle until the auriculo-ventricular valve is put on the stretch by the ventricular contraction. The contraction passes from auricle to ventricle. So also does the contraction pass from one layer of fibres to another, though the proof of this is not so easily furnished as in the other case. The contraction passes steadily from one layer of fibres to another—from 1 to 2, 2 to 3, 3 to 4, 4 to 5, 5 to 6, 6 to 7—swiftly and uninterruptedly. But in rhythmical irregularity we have the systole *delayed;* and the action is one of which no clinical observer can hold a doubt. There is a peculiar roll, especially in a dilated heart, which is unmistakable. Dr. B. W. Richardson compares it to a change of the "stroke" striker, when a number of men are striking on one anvil. The writer* has compared it to the change of a horse's feet—i.e., putting the other foot first, or leading from it, when cantering. It is not, however, an intermission—that is, a beat lost; it is the beat delayed. The systole is arrested during its early half, or, in other words, during the contraction of 1, 2, and even 3; and then there comes a sharp excited rap, not without force. The systole is delayed and shortened. The more marked condition, intermittency, is thus described by Richardson:—"The momentary cessation of the left ventricle occurs from deprivation of the force which it should receive to enable it, under the stimulus of the blood thrown into it by its auricle, to contract and regulate the blood-current in its arterial course."† So in the less-marked condition of irregularity we have a cessation of muscular action, momentary, nearly instantaneous, yet perceptible; and then an active contraction. This condition is artificially produced by stimulation of the vagus. The contraction which should normally pass from 1 to 2, 3, 4, 5, 6, and 7, is delayed during the time of contraction of 1, 2, and even 3, and is concentrated during the time 4, 5, 6, and 7 contract. We have a delayed and shortened systole the more nearly contraction of the various layers is synchronous, giving us a sharp apex beat. This is an exact description, if not a satisfactory explanation, of irregularity in cardiac rhythmical contraction.

We can now proceed to consider at length the causes under the heading *B.*

B. Disturbance of balance betwixt distension and the irritability of the organic ganglia + the action of the vagus.*

Thus, when ventricular contraction ceases, from any cause, to be normally complete, a certain amount of blood is already in the flaccid ventricle, into which the gorged auricle and veins behind are ready to pour their contents. The ventricle is soon full, and, goaded to action, the muscular fibres contract, perhaps only to the extent of their over-distension. Like a bladder behind an enlarged prostate, or a stricture, the contraction is only to the extent of the over-distension—no farther. Goaded, the fibres must contract, and purchase momentary relief. The irritation of over-distension overcomes the restraining action of the vagus. Soon full, the ventricle soon contracts, and a rapid, feeble, unsustained pulse ensues. In the midst of this come one or two irregular beats. The wearied muscular fibres claim, every now and again, and often very rhythmically, a longer diastole, and fatigue asserts itself in a longer sleep, however the irritant may goad. The heart's brief, fitful sleep has its longer and shorter periods of rest, according to its necessities, as has the organism under weariness. The heart's short period of rest is the diastole; its sleep, therefore, consists of very brief snatches. And not only is this undesirable in the excess of labor thus thrown on the muscular walls, but it is a condition which tends to perpetuate itself, when distension becomes great and contraction incomplete. The amount of time, too, which is taken off from the heart's period of rest in the twenty-four hours by increased activity is much more than is commonly supposed. Thus, if we divide a second into three sections, one covering the systole and two the diastole—a proportion which is not far from the exact condition,—we have 180 sections in a minute. With a rate of pulsation of 60 per minute, we have 20 seconds of contraction and 40 seconds of rest; but if increased to 81, we have 21 beats, or 7 seconds, taken off the time of rest—that is, the diastole must be shortened, and 81 diastoles must take place in 33 seconds. Instead of 30 diastoles in 40 seconds, we have 81 in 33; or, in other words, each diastole, instead of lasting two-thirds of a second, lasts less than half a second in time: the diastole and systole are approaching each other in duration. In twenty-four hours the increase even amounts to something considerable: seven minutes per hour gives two hours and forty-eight minutes less rest for the heart in twenty-four hours.† The heart's period of rest, even in this small increase, is diminished one-fifth. While at the same time the imperfect ventricular contraction, imperfectly distending the aorta, elicits only an imperfect recoil—the propelling power through the coronary arteries; and this reduced coronary circulation affords but imperfect nutrition. There are then aggregated the most powerful factors for imperfect repair—namely, increased labor, decrease of time of rest, and defective blood-supply. There is not a single morsel of spare power for the induction of compensatory hypertrophy except in organisms of high vitality. The irregularity, the evidence of inability, is a serious symptom, but not one whit too serious for the circumstances it indicates; and, sooner or later, on this acknowledged inability will be planted the result of imperfect nutrition—viz., a degenerate condition of the muscular fibre, still further inability, and ultimate cessation in diastole. Where the question lies so as to affect the balance of power with which the muscular fibre is associated and its relation to its function, this condition is of serious import; and it becomes of high importance, not only to the patient, but to the physician, as affecting his prognosis, to distinguish these acknowledgments of inability, these truly adynamic conditions, from those disturbances of balance and rhythm which are comprised under the following section.

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* Edinburgh Medical Journal, April, 1869.

† Med. Times and Gaz., Jan. 4th, 1868.

* It is unnecessary to carry the reader again over the ground of distension being the force which excites the heart fibres to contract; the contraction taking its rise in the impressions produced by the distension on the cardiac ganglia, whose sensitiveness to impressions produces the regular contraction after a certain distension. Thus, in spite of the controlling action of the vagus, when blood is poured more rapidly into the heart, as in muscular exertion, the contractions are more rapid, but not feebler till exhaustion is attained.

† The question of the extent to which an increased number of systoles per minute infringes on the time of rest by shortening each diastole is a rather difficult one. It is obvious that in very high rates, as 160 to 180, each systole cannot be one-third of a second, as there would then be no time whatever left for diastoles. Still the broad question of the increasing number of contractions per minute diminishing the aggregate time of the diastoles is plain enough. A glance at two sphygmographic tracings of 60 and 120 pulsations per minute would render evident what it is scarcely possible by words to demonstrate clearly.

C. Disturbances of balance betwixt the organic ganglia and the inhibitory or controlling action of the vagus.

Nerve force can only manifest itself in muscular action, and the disturbances of the balance existing betwixt the sympathetic ganglia and the inhibitory fibres of the pneumogastric can only be manifested through the muscular fibres under their control. As stated above, the fibres of the vagus have a restraining action, and hold back the contraction of the layers of muscular fibres until one harmonious contraction can be ensured. Any excitation of the vagus will, then, restrain the ventricular systole, though the muscular walls may be perfectly equal to their function and in nowise incapable. Thus, by galvanising the vagus the systole may be retarded several beats, or even permanently. Aconite and other drugs which lower the susceptibility of the cardiac ganglia to impressions, produce irregularity. No longer so sensitive to the impressions of distension, a stronger stimulus is requisite to excite contraction. Any force which exhausts the sympathetic system will lower the susceptibility of the cardiac ganglia, and will produce disturbance of balance and its inevitable results—the manifestations thereof. So, when, from exhaustion, the stored-up nerve force of the sympathetic is drawn upon too heavily, we have manifestations in the working of the organs supplied by the splanchnic in the shape of disordered action; and this, for obvious reasons, is most common in the ever-acting heart. Thus, after a heavy day's exertion in the hay-field the writer's pulse intermitted even, and a very disagreeable sensation was experienced during the period of retarded contraction. A night's rest, by permitting the organic nervous system to recover itself, restored the normal balance, and the irregularity was gone. So after an indigestible meal, when a great portion of the organic nerve force is drawn off to the stomach and its labors, and thus the cardiac ganglia are insufficiently supplied, there follow a disturbance of balance and alterations of rhythm. This often happens to the writer when induced or necessitated to make a dinner of veal pie. Irregularity of the heart's rhythm after a debauch is a common phenomena, and is consequent upon the exhaustion of the sympathetic by repeated applications of stimuli. This often leads to temporary dilatation, or cardiac engorgement, with rapid, feeble pulse, imperfect supply of blood to the brain, and delirium tremens. In this condition the administration of an agent which notably produces more perfect ventricular contraction, and thus a more perfect supply of blood to the brain, produces the most decided relief. This explains why some cases of delirium tremens yield to digitalis like magic, while others are in nowise relieved. Every man who has unfortunately allowed himself too much wine at dinner will remember how he could keep himself pretty comfortable next day until he had dined again, and then he was miserable unless he once more resorted freely to stimulants. The organic nerve force, only just up to the mark all day, is severely taxed by the demand made by the stomach, and then the depression; and this condition is not uncommonly accompanied by cardiac irregularity.

Dr. B. W. Richardson has said all on constitutional irregularity that the present knowledge of the subject will permit; and certainly some individuals have a naturally irregular and even intermittent pulse, so much so as even to become regular in illness only. This consists in a want of balance betwixt the opposing nerve forces; the subtle arrangement usually attained is not quite reached in these cases, but we have yet to learn that the individual is by the want of it in any way much injured. As to its value as evidence of insidious cerebral mischief, Dr. Richardson has left nothing to be said; but I cannot agree with him in confining intermittency or irregularity—for he does not clearly define the distinction—to this class of disturbances of balance.

The diagnostic value of cardiac irregularity cannot be said to be a subject without its difficulties. It is a complex question; and though usually significant of a disturbance of balance of power betwixt the opposition of the blood to be driven and the heart's power to drive it, it may be merely evidence of disturbance in the balance existing betwixt the opposing nerve forces. How, then, is its connexion to be determined and its importance weighed? Only by a careful estimate of its surroundings. If temporary in its character, it matters little whether it is the result of muscular inability or splanchnic exhaustion; as in the irregularity of acute asthenic disease in the latter stage it is a serious evidence of vital adynamy, but as a temporary condition it usually passes away with the causes which gave it birth. If temporary, it may fairly be regarded as transient with the conditions on which it depends. Thus it will now and again put the physician on the track of some secret debauch; and when so originating, it as soon vanishes as when occasioned by other transient cause. When persistent, however, and without a history which would account for its temporary presence, it becomes no simple question, and presents many difficulties. It is then even connected only with either loss of power in the ventricle, whatever the cause, or disturbance of balance of nerve forces: one of the two it must be. And, firstly, as to its relative frequency: as connected with disturbance of nerve balance it must be rare, as in the writer's experience it is comparatively unknown. The *à priori* probability is enormously in favor of its being connected with muscular failure. If purely nervous, it will want the objective and subjective symptoms of cardiac inability. There will be want of increased dulness; no impairment of first sound or apex beat; no congestion of organs behind; no diminution in the bulk of urine; no loss of capacity for exertion; no difficulty in breathing. Both rational symptoms and physical signs are wanting. These witnesses will settle every case, except that of implantation of serious cardiac change in an individual with this natural want of rhythm; and such a case must necessarily be rare. Cardiac irregularity may be due, however, to causes implicating the right ventricle only. In the distension of the right ventricle in acute disease of the respiratory organs and in acute asthenic disease we find the irregularity solely due to trouble in the right ventricle. There is no opposition to the free flow of blood from the left ventricle, which is closing on a small quantity of blood passed in from the pulmonary veins; and thus the small radial pulse is only indicative of the state of the right side of the heart. There is a strong impulse towards the ensiform cartilage, increased dulness towards the right side of the sternum, and accentuated second sound over the pulmonary valves,—all indicative of right ventricular labor. The fibres being in many instances common to both ventricles, the left side necessarily keeps time with the right. In some cases a distinct irregularity connected with failure of power in the right ventricle can be detected on auscultation, which is not sufficiently pronounced to be felt in the radial pulse. In these cases there is usually evidence of old-standing disease in the respiratory organs and right ventricle; in rarer cases of acute disease it is probably due to the right ventricle being partially paralysed by the excess of carbonic acid in contact with the endocardium.

Finally, cardiac irregularity is evidence of disturbance of balance of power from failure of one of the opposing forces. Very generally this failure lies in the muscular walls, and then it becomes a serious symptom, especially in adynamic conditions. In importance and significance, it lies midway betwixt successful effort (laboriousness)—that is, palpitation—and the more serious admission of incacity, intermission, loss of an entire beat; and it is frequently found associated with both.

The subjoined chart will give a bird's-eye view of the subject, and is thus preferable to a mere *résumé.*

Cardiac Irregularity is due to Disturbance of Balances in—

- 1. Vis Inertiæ of Blood = Muscular power.
  - Increase in the vis inertiæ by
    - Arterial obstruction.
    - Altered chemical characters.
  - Loss of muscular power.
    - Loss of integrity from degenerat'n.
      - Acute, in fevers.
      - Chronic, as from atheroma.
      - } Exudation into substance. (*Jenner.*)
    - Altered nutrition from altered blood.
- 2. Distension = Irritability of cardiac ganglia + controlling action of vagus.
  - Excessive distension, from temporary action of causes above.
  - Imperfect distension—as in severe hæmorrhage,—from want of blood to distend the chamber walls.
- 3. Cardiac Ganglia = Controlling action of the vagus.
  - Exhaustion of sympathetic,—from fatigue, debauch, withdrawal of nerve-force for purposes of digestion, &c.
  - Chronic cerebral disease, &c.—(*Richardson.*)
  - Constitutional peculiarity. Transient mental conditions.—(*Richardson.*)
  - Tumour of vagus.—(*Romberg.*)
  - Action of cardiac neurotics:
    - Excit'g the cardiac ganglia,—as digitalis, belladonna, &c.
    - Paralys'g the cardiac ganglia or exciting vagus,— as aconite, Calabar bean, &c.

WHAT WE OBSERVED DURING A RECENT VISIT TO THE SEAT OF WAR.

BY

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AND

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(*Concluded from February number*—p. 73.)

WE next visited the Model Hospital at Bingen. To begin with the station of Bingerbruck, we noticed that the arrangements for receiving the wounded were even more perfect than elsewhere. A restaurant in the station was arranged as a surgery, in which those patients who needed it had their wounds dressed, bandages readjusted, food &c. given them before being sent on to their destination. For it must be remembered that some, indeed most, of these poor fellows had to travel from one to two hundred miles; and although everything was done which ingenuity and humanity could devise to mitigate their suffering, this must have been to many of them a severe trial. One object of the Bingen Hospital, established by Dr. Thudichum, is to waylay some of these cases—the more interesting ones we were told; but let us charitably hope rather the more severe ones, whether interesting or not. At any rate those we saw served to confirm the latter view.

The hospital (if such a term can fairly be applied to it) is situated on the Rochusberg—a hill about 250 ft. above the Rhine, and more than a mile and a half from the station of Bingerbruck. It was a stiff forty minutes' walk. Why it might not have been placed somewhat lower down we could not understand; but we came to the conclusion that if the officers in charge had to descend many times a day, they will not be long before they wish it were at a somewhat lower elevation than it is now. If the comfort and convenience of the wounded soldiers are to be studied, surely easy access ought to be the primary consideration. After a railway journey of considerable length, it will not tend to improve a compound fracture or a severe case of fever to be carried up such a long steep hill.

The International Field Hospital, as it is termed, is situated in a field overlooking the Rhine, and bounded on the west by the Rochus Hotel. This building was used at first as the hospital, the upper rooms being made into wards, the lower ones being, as they are now, adapted to stores. The kitchen is an out-building of the hotel. On the western side the field is enclosed by wooden hoarding, and on the other sides by a strong hedge of fur twigs and poles. This protection was found necessary to protect the tents from being blown away into the river below!* The field has been well drained by means of hard glazed pipes, which receive the waste water of the sinks. The liquid is carried into a distant shrubbery, where it is absorbed. No solid matter of any kind is allowed to enter the drains. At the entrance to the field is a porter's lodge, made of wood; and near this another building used as a store for spare tents, poles, &c. There are eighteen tents, each thirty feet long and sixteen feet wide, arranged in two rows, with a wide path between them. The tents are pitched on a wooden floor, raised about eighteen inches from the ground, and surrounded by a trench, over which a little wooden bridge leads to the entrance. The sides of the tents are boarded; the canvas sides are securely fastened to the floor, as the wind is too strong to allow of their being free. The doorway is made by unhooking one part of the tent, which is double. Ventilation is secured by means of a pipe leading under the bridge to the centre of the tent, and also by means of a small aperture in the roof, about six inches wide, with a canvas cover, which can be shut or opened by means of a string inside. In each tent is a close stove, from which the smoke is carried under the flooring to the outside. The result of this arrangement is that, if the wind be fickle, the smoke is driven back into the tent, so as almost to suffocate the inmates, as there is no other outlet for it. The atmosphere of the tents was, when we visited them, decidedly stuffy and close—it was certainly a very warm day; and, on the other hand, we learned that at night the temperature frequently fell as low as 5° Cent. (40° Fahr.) The mean temperature during the day was 25° Cent. (i.e., 85° Fahr.) The reason of this is that, the patients often complaining of feeling shivery, there is a temptation to make too great fires, and then the temperature cannot readily be modified.

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* The following is an extract from a letter from Mr. H. W. Page, one of the assistant-surgeons at the Bingen Hospital, whic

There is a good operating room of wood, but as yet there has been little need for it. It is very well supplied with every requisite. At the end of the same row is a wash-house, with coppers for boiling linen, which was still unfinished however. Opposite this is a small wooden shed, containing a stove of simple construction for drying earth for the closets. It is nothing more than a simple long stove, covered with iron plating, and ending in a chimney. The chimneys are made of an admirable material, being solid perforated blocks, about two feet long, of volcanic material, mixed with fine cement, and baked. The material is found at Oppenheim, about three miles off. It is proposed to move the kiln further off, as the smell of the earth is at times unpleasantly strong.

The water-supply is brought from the Rhine by an eight-horse engine to a large galvanised iron tank, from which it passes to three large iron filters raised upon scaffolding, whence it is distributed by a regular series of pipes. All the water used for drinking, cooking, or for dressing wounds passes through the charcoal filters.

Arranged along the central street are five receptacles for fluids, which empty into the drains, and every drop of fluid refuse is carried to them. To each one a pump is attached. There is an earth-closet *in* each tent, with a zinc receptacle, which is emptied and washed out with "mortar" (qy. lime) daily. There was an entire absence of smell about them, though it is intended eventually to have each closet outside the tent, to be approached by a fold of canvas like that at the entrance to the tent. Dr. Thudichum intends to have a tramway laid down from the kitchen round all the tents; at present it is about a hundred and fifty yards distant from the furthest tent. A telegraph wire is laid down from each tent to the porter's lodge and the hotel (where the medical officers are quartered), and thence to the station at Bingerbruck. By this means notice is given of the arrival of wounded at the station, when measures are at once taken for their removal to the hospital. Four trucks with light covers are used for this purpose, each holding one patient; and four men are required to pull one up the hill, so that sixteen men are thus kept employed whenever any stress of work comes. Each of these ambulances has six spings, so that the shaking is reduced to a minimum.

We now come to the interior of the tents, or wards we will call them. In each there are placed eight beds, not more than from eighteen to thirty inches apart, six only of them being occupied at one time. The bedsteads are of iron, with horse-hair mattresses, straw palliasses and bolsters, and hair pillows. A small iron table, two chairs, and the stove and closet already mentioned, complete the furniture. They were beautifully clean, and there was certainly an air of comfort about them. But a change from a bright September day to a foggy November one would probably alter the aspect considerably. The nursing is performed entirely by men (one to every four cases), and no women are occupied about the wards.

The diet is liberal: 5 oz. of cooked meat are allowed for dinner, and a smaller quantity for supper; but the amount given to each man varies somewhat, as it is divided in the tent, and the patients' appetites are consulted to some extent as to how much each one shall have. This *rational* plan appears to answer well. Stimulants are given freely; chiefly, however, the wine of the district, which forms part of the ordinary diet. The store and kitchen departments are under the management of ladies, of whom Miss Thudichum is chief. There are two principal surgeons—Mr. Simon and Dr. Thudichum,—with *ten* assistant-surgeons and five dressers; seventeen gentlemen in all to attend to at the most 200 patients! As yet, however, there have been but about 50 patients scattered in eighteen tents; so that there is no lack of medical attendance in this instance, Dr. Thudichum very kindly showed us over the hospital, and gave us every information concerning its details. He informed us that the number of visitors was very considerable, as everyone is naturally anxious to see a model of what is believed by its promoters to be a perfect hospital.

The fever cases are mixed along with the rest, or were when we saw them; but according to a letter in *The Times*, a special tent appears to have been set apart for fever cases. This, however, is quite contrary to the principle which Dr. Thudichum ex-

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appeared in *The Times* of Oct. 30th:—"Last night, amid a storm unparalleled for its violence, and such as I never shall forget, which rose as suddenly as it departed, after forty-five minutes' duration, the whole hospital was swept off the face of the earth. Never was such a scene; never such agony! If it was awful for wounded men, without shoes or stockings, with nothing but their blankets, which in a second were drenched, to turn out and be exposed to the elements, it was even worse for the sick. Imagine a typhoid fever patient, for whom it is almost fatal to move in bed, having to take up his bed and walk. The storm began at 8.15 P.M., and not till 1 this morning did we succeed in housing the unfortunate creatures in the operation-room, in the porter's lodge, and in the hotel. The wonder is that they all lived through it. To-day, what a wreck! Nearly every roof is stripped, and the people declare they never remember such a storm. The rest I leave to your magination."

pressed his approval of to us, that of mixing. He is decidedly opposed (as were many whose opinion we asked on the subject) to any such building as a permanent fever hospital. One tent was set apart for cases of dysentery, but the cases had been of a very mild character, for some of them had been sent from a distance of one hundred miles or more, chiefly from Saarbruck. The only treatment has been to give plenty of fresh air, simple (Liebig's) food, and now and then a little opium, but not much.

Carbolic acid has been freely used in the surgical cases, but less stress is laid upon this or upon any special mode of treatment than upon the influences of a pure, bracing atmosphere, good food, rest, and an entire freedom from outward contaminating influences.

The hospital is to all intents and purposes a convalescent institution. All the cases have, as a matter of necessity, to be brought a very long distance; and as there is a very remote prospect indeed of any fighting nearer than Metz, the cases may have to be conveyed further still. Why, then, to begin with, need it be placed in such an inaccessible situation, with all its glaring drawbacks to counterbalance the advantages of a fine situation. Surely good air could be found in such a district without ascending nearly 300 feet. Then, again, what can twelve surgeons possibly find to do, even if they had no dressers to assist them?

We could point out what we conceive to be several defects in this so-called model hospital; but will content ourselves with only one or two further remarks. During the lovely weather of summer and early autumn (and it *is* lovely at Bingen) all is admirable enough; but in the wet, windy times, such as we are having now, fancy having to carry all the food for the patients a distance of more than a hundred yards through the open air, the medical officers having to pass the same way every time they visit a patient, the tents kept closed on account of the wind, the only ventilation being a small hole in the roof; half the work, in fact, having to be performed in the open air,—and what comfort can there be in doing it? Then, take mid-summer. What patient could endure a canvas tent with the thermometer standing at, say, 80° or 85° Fahr. in the shade? The main point, however, appears to us to be this: if it is intended for a *field* hospital, which we understand to mean really an ambulance, it seems little short of ridiculous to perch it upon such a hill, at so great a distance too from the scenes of action; if, on the other hand, it is intended to be a permanent hospital, while the same objections hold good with regard to its inaccessibility, it will have the additional drawback, we venture to think, of the loss in comfort and convenience, which will much more than counterbalance the advantages which are expected to accrue from its undoubted salubrious position. It has not the merit of being on an economical plan, as it has been stated by a member of the committee that the expenses will exceed £20 a day. Let us hope, therefore, that while it will serve to afford very many useful suggestions to those interested in hospital arrangements, and at the same time anticipating for it a favorable rate of mortality, it may not be taken as a *bonâ-fide* model of what such an institution ought to be.

After leaving Saarbruck, the only further opportunity we had of seeing a hospital was at Mayence, where we paid a very hasty visit to one of the permanent military hospitals. This probably serves as a type of the others; but many have been established in the large towns on the plan of the Belgian Ambulance already alluded to, which is an adaptation of that employed on a very large scale in the American war with great success.

The Barrack hospital we saw contained 525 patients, as an index in the entrance-hall informed us, on which were also marked the names of the physician and surgeon of the day, along with other particulars, among which were detailed the number of patients in each particular ward. The hospital was almost entirely filled with wounded men. One ward which we entered was numbered "80," in which were six patients, all Frenchmen. They expressed themselves as being quite comfortable, and well provided for. One had a half-filled bottle of wine by his side; another was eating chocolate; another smoking. As far as our observation extended, and judging from all we heard, no difference whatever was made between the French and the Prussians in any of the hospitals, of whatever nationality. We were told, however—but cannot vouch for the truth of the statement,—that, as a rule, only French soldiers were taken in the French ambulances.

Our travels beyond Mayence to Kehl and elsewhere were devoid of any medical interest, so that we need not here relate any details of that part of our journey.

We will conclude this paper by making a few general remarks on what we have already endeavored to describe. One satisfactory feature stands out prominently in regard to the present war. Enormous as the number of the killed and wounded has been, there has probably never before, in any large war, been such a large proportion of the latter who have recovered. This result is attributable no doubt to many causes, but the principle have been the multifarious ways in which provision has been made for attending to the wounded and sick, and the manner in which they have been treated. Fresh air has been deemed of more vital importance than heretofore, and in most instances ample means have been adopted for securing a full supply of it. Then, again, the food supply has been in most instances better managed than it could have possibly been had the administration of it been left simply in the hands of the conquerors; for it should be remembered that in this war the Prussians have had to provide, not only for their own people, but also for a very disproportionately large number of French. It is manifest enough that the French commissariat, as well as the medical department, has been an utter failure. One thing is sufficiently clear, that in those buildings in which there has been the most perfect natural ventilation the immunity from hospital diseases has been greatest; but this alone does not explain why in some large buildings, such as churches and other high places, the mortality has been so large. We have come to the conclusion that ill-ventilation alone is not sufficient to account for the difference. It has been observed that in churches, barns, and other similar buildings, which have been long uninhabited, or never inhabited at all, there the mortality has been greatest. This result has not always manifested itself at once, but, as in the case of the riding-school at Saarbruck, after being used for some little time.

In the case of our own new North Staffordshire Infirmary, in that of the new infirmary at Aylesbury, and, it has been stated, in the new Leeds Infirmary

—all built upon the best possible plans,—as well as in many other new institutions, the surgical cases have at first turned out unfavorably. This circumstance is so singular that, taken in conjuction with what we observed among the unused buildings at the seat of war converted into hospitals in which similar bad results followed, it set us thinking why it should be so. The only probable explanation which suggests itself to our minds is this: that there must exist in new buildings, and for the same reason in buildings unused for habitation, some damp miasma which must act injuriously on the wounded. What the nature of it may be we are not prepared to say; but that some such cause exists for the ill-success attending them we feel certain. In some of those we saw—e. g., in some of the churches—holes had been made, accidentally or purposely, in the roof and walls, which allowed of a fair amount of air-circulation through; still bad results followed. Again, in some private houses where the wounded were lodged the same occurred; but in this case it might almost invariably be traced to a dislike which either the patients or their attendants had to the admission of air. Where the ventilation by windows and doors was well managed in them, as a rule the results of treatment were favorable.

This subject is, we venture to think, one which deserves some investigation; and we should be very glad to hear the opinions of those who have had larger opportunities of observing, as to whether the view we have expressed may not give the true explanation of why in some buildings (*cœteris paribus*) the patients recovered so favorably, while in others the results were so fatal.

So far as the *treatment* of the cases is concerned, nothing absolute can yet be known regarding the rate of mortality among them as a whole; but it is abundantly clear that a plan generally acted upon has been both a scientific and a successful one. It appears to have been throughout the aim of the surgeons to trust very much to nature; to secure rest as much as possible, and cleanliness by the adoption of frequent dressing and washing of wounds; to give as little actual medicine as was really necessary, and to secure a full supply of wholesome food. These conditions, with a well-ventilated room and good nursing, have yielded unusually favorable results. Where from any cause this plan could not be fairly carried out, success has been diminished.

With respect to *nursing* we cannot say much; but we everywhere heard the conduct and usefulness of many, indeed all those English ladies who have so nobly gone out to help, spoken of in the highest terms. The work is undoubtedly, as has been well said, "disgusting and divine"; and those who have done and are doing it deserve the highest praise. Such labor is a very different matter indeed from the *dilettanti* work at home with which so many self-complacent young ladies like to be amused, while at the same time flattering themselves that they are doing a noble work. We could well dispense with these; but for such nurses as those at Sedan we cannot be too thankful.

The organisation, or, more correctly speaking, the want of organisation, of the English National Society, is a point about which we should like to have said a few words; but we have already expressed our criticisms so freely, and have already taken up so much space, that we must leave this subject untouched.

Hanley, Staffordshire, October, 1870.

THE DIFFUSION OF SCARLET FEVER BY THE LAUNDRESS.

By T. P. Heslop, M.D.,

Physician to the Queen's and Children's Hospitals, Birmingham.

At the beginning of this year the in-patient department of the Birmingham Children's Hospital was removed to a much more suitable building and locality than it had previously enjoyed. This division consists, as formerly, of a contagious and a non-contagious department. Into the former only cases of scarlet fever and diphtheria are admitted. Its beds amount to thirteen. Occasionally, under great pressure, fourteen or fifteen patients have been at one time in the contagious ward. The precautions taken in order to ensure the isolation of the inmates of the ward appear to me to be as complete as the circumstances will admit of.

In our old building, though very ill-fitted for a hospital, the diffusion of scarlatina among the ordinary patients was exceedingly rare. In fact, as about five hundred children under ten years of age passed through the general beds annually, we were entitled to declare that the chance of one of them catching this disease was not appreciably greater than is incidental to the same number of young children taken indiscriminately. The washing of the clothes was done outside the establishment for several years before we quitted the building at the end of 1869; that belonging to the scarlatina ward being sent to one laundress, and that belonging to the general cases to another.

Scarcely had the institution been transferred to its new abode when the medical officers were alarmed at the frequency with which scarlet fever made its appearence in the general wards, both medical and surgical. As the year advanced the evil increased, and several cases of operation were followed by more or less severe attacks of the disorder. From July 21st I am enabled to give an exact account of all the cases, having had the advantage of a report furnished by the present resident medical officer, Dr. Underhill. For convenience, I have placed them in the following tabular form:—

No.	Name of ward.	Date of admission.	Date of transference to contagious department.
1	Ward 5	(sister of ward)	July 26th.
2	Ditto	July 21st	Aug. 4th.
3	Ward 6	Aug. 8th	Aug. 18th.
4	Ditto	Aug. 9th	Aug. 26th.
5	Ward 5	Aug. 22nd	Aug. 26th.
6	Ditto	Aug. 12th	Aug. 26th.
7	Ward 1	Aug. 20th	Sept. 8th.
8	Ward 5	Sept. 3rd	Sept. 12th.
9	Ward 1	Sept. 12th	Sept. 19th.
10	Ward 1	Sept. 22nd	Sept. 28th.

It was to no purpose that the medical officers consoled themselves with the reflection that all the cases caught in the hospital were followed by recovery. That ten cases of scarlet fever occurred in the general wards in but little more than two months was in itself a very painful circumstance, and could not but engender reflections on the management. Attention was directed to the subject, and the first thing investigated was the washing department. The whole of the washing was executed in the laundry of the hospital, lying immediately behind the centre block. The drying yard lay immediately behind Wards 1 and 5. Ward 6 closely adjoins Ward 5; and both these wards are under the charge of the sister who was the subject of the first case. The whole of the clothing of the contagious ward was taken first to a tub in the garden contiguous thereto, in which was regularly placed some Condy's fluid. From time to time the foul linen, which had been subjected to the action of the fluid, was removed to the laundry, where it was washed on a different day from that on which the clothes of the general wards were done. It is, however, important to notice that the whole washing process took place in the same room, and was performed by the same persons. At the same time and in the same room that the non-contagious clothes were being folded and mangled, the contagious clothes were washed. This is the utmost limit of their separation that can be admitted, and it is probably more than actually existed. On the 16th of September chloride of lime was put into the wash-tub of the contagious clothes instead of Condy's fluid; but a full consideration of the remarkable immunity from scarlet fever in the old building, where no washing was done during the latter period of its occupation, induced the medical officers to order that the contagious clothes should be sent away from the institution to a laundress who took in no other washing, the ordinary clothes being washed in the hospital laundry as usual. This order took effect on the 28th of September. From that date no case of scarlet fever has occurred in the wards. Ten cases broke out between July 26th and Sept. 28th, when the clothes of the contagious department were washed and dried in the institution. Between this last date and the present day (Nov. 22nd), being seven weeks and six days, no case has occurred; no circumstances having intervened different from those previously existing, with the exception of the withdrawal of the clothes of the contagious ward from the laundry.

These facts give a strong support to the opinion of many sanitary authorities, that the laundry is a means whereby scarlet fever is greatly propagated. It would be a wonder were it otherwise, for nothing is better established than the tenacity with which the contagium of scarlet fever adheres to clothing. Unfortunately, this knowledge has been to a great degree sterile of practical good owing to a reliance on certain methods of disinfection. Neither the Sanitary Acts nor private practitioners give the instructions which the urgency of the matter demands. Mr. Simon complains, in his twelfth Report (page 14), that "house-holders should at their discretion send infected wash-things to common laundries." In his "Memorandum on Precautions to be taken against Scarlatina," he speaks of the necessity for using a strong disinfectant fluid in the room, and directs that "handkerchiefs and other like articles, as soon as fouled by the patient, should be well scalded with boiling water, or immersed in the disinfectant fluid." It is to be presumed that the learned author believes that after this process has been carried out the articles may be safely transmitted to the laundress, as he does not forbid such transmission. The Sanitary Act of 1866 supports this presumption. More recently Dr. Whitmore, of whose exertions in connexion with this subject I wish to write with respect, has issued a memorandum containing a definite statement upon the matter. His third instruction is as follows: "A large vessel containing water, into which has been poured either Condy's fluid or the solution of chloride of soda or lime, should be kept in the room, and into this all the bed and body linen, as soon as it is removed from the patient, and all soiled towels &c. should be placed. Having been kept there some time, the things may be removed and sent to the laundress." I believe that there is no set of instructions in this country, whether published by individuals or by institutions, which does not either state or imply that it is safe to send disinfected clothing to a laundress. Sanitary legislation is based on this presumed safety. But the facts I have collected show that the temperature of boiling water is not sufficient to destroy the contagium of scarlet fever, even after the articles washed have been previously immersed in water containing Condy's fluid, in the manner, at any rate, in which that immersion was conducted in the Children's Hospital.

An interesting question now arises: did the evil result from the mixture of the clothing of the two departments, or from the carriage by the air of the contagium direct from the drying infected clothes? I must speak with caution on a question of such vital importance, but there are many facts which tend to prove that the latter was the more efficacious mode of transmission. There are two wards—Wards 3 and 4—placed at the furthest distance from the laundry and drying-yard, and separated, moreover, from these last by the kitchens and outbuildings of the hospital. Now, though the first of these wards is over the scarlatina ward, and is the largest of the general wards, its comparative freedom from the malady early attracted attention. It will be noticed that not one of the cases tabulated occurred in these wards. But if the infection of the general clothing, by contact with that belonging to the contagious department, was the chief means of propagating the malady, this difference would have been hardly likely to occur. There are two circumstances which support this conclusion. It was noticed that the cases which caught the disease were almost always on the side of the ward next to the laundry. The other circumstance is, that towards the end of July a wall about eight feet high, situated in the drying-yard a few feet behind Wards 1 and 5, was removed. It is certainly a remarkable incident that these wards and Ward 6, all in the same wing, presented immediately an outbreak of scarlet fever. Ward 1 is on the ground floor, and three out of the four cases in September broke out here. Such facts demonstrate the dangers incurred from transmitting infected clothing along the streets in carts, trains, or by hand; but they are not sufficient to warrant the assumption that the admixture of infected clothes with those uninfected is otherwise than highly dangerous. The same air which carries the contagium from the infected clothing to a sound person conveys it to his clothes, and mediately to himself. It is probably owing to the operation of both these modes of transmission that in certain suburban districts, where laundresses abound, scarlet fever is commonly prevalent.

I find in the laundry the explanation of two facts. One of these is the circumstance lately adverted to in the journals, that it is more easy to control the spread of scarlet fever among the poor than among the rich. The poor wash their clothes at home; the rich send theirs away, and what occurs to them from that moment is entirely unknown to their owners. The extraordinary spread of scarlet fever of late years is fairly ascribable to the greater infrequency of home-washing. In the middle classes it was nearly the universal custom at the beginning of this generation to have the washing done at home.

The "washing-day" is gone, but it lives in many a homely ballad. Sanitary science may find it indispensable to bring it back again. The other fact concerns the actual appearance of scarlet fever in families. Now though, to use Mr. Simon's words, "of this subtle and destructive contagium we know no other birthplace than the human body," it is certain that outbreaks of it happen ever and anon in private families which the most careful scrutiny does not enable us to trace to their source. This is not all. One of the most frequently observed events in the disease consists in its nearly simultaneous outbreak among three or four of the same family. It is common to be called to a household containing several members at nearly the same stage of the disorder. The notion that one caught it from the the other is thus forbidden. Some common cause has been in operation, and what more likely common cause exists than the linen, changed on the same day in most families, itself infected by contact with the linen of another family residing perhaps ten miles off? I will now sum up the practical inferences from these facts and reasonings.

It is at least as necessary to isolate the clothing as the person of a scarlatina patient. In private families of good means all articles used by such a patient should be burnt. This may turn out to be the only sure means of rendering the clothing harmless. In order to permit of this being done in families of more moderate pretensions, it should be a standing household rule that complete sets of clothing, too much worn for daily use, should be preserved for employment in the sick room of the infectious patient. No more valuable present could be made to a poor neighbor undergoing such a trial. Where the clothing is not burnt it should be washed on the premises, whether it be subjected to ordinary disinfectants or otherwise. Less reliance should be placed on these latter than upon exposure to a great heat much above that of boiling water, and upon their isolation from other clothing for a considerable period. Probably the most effective procedure would consist in thorough washing with soft soap, subjection to the fumes of burning sulphur and to the heat of a common oven, followed by their exposure for several days before a large fire. Under no circumstances should they be sent to a laundress.

In public institutions, as schools and children's hospitals, the linen of contagious cases should be methodically disinfected, as far as possible, before it is removed from the room of the patient. It should then be sent to be washed by a person who takes in no other washing. She should be either a spinster or without children. She should be warned of the nature of the case, and instructed to take every precaution against the diffusion of the disease. Similar measures to those mentioned in the last paragraph should be employed in this case.

The 38th section of the Sanitary Act (1866) declares, in reference to infectious disorders, that "any person who without previous disinfection gives, lends, sells, transmits, or exposes any bedding, clothing, rags, or other things which have been exposed to infection from such disorders, shall, on conviction of such offence before any justice, be liable to a penalty not exceeding £5." But how and where is the disinfection to be done? Who is to certify that it has been sufficient? The only proof of the disinfection of linen is, that it does not infect. Let it be assumed that chloride of lime and carbolic acid destroy the contagium of clothing, how are we to be sure that the proper agent has been employed, in the proper quantity, for the proper time, for *all* the infected articles, and that the result is the purity of those articles? It is idle to demand a condition often unattainable in real life, and where attainable difficult to attest. If to this it is added that the operation of disinfectants, however skilfully used, cannot be said to be beyond the reach of doubt, we shall understand how grave a responsibility is taken when sanitary legislation permits the transmission of so-called disinfected linen to the laundress.

It is true that the Sanitary Act has remedied the imperfections in previous Acts, and declares (in the 23rd Section) that "the nuisance authority in each district may provide a proper place, with all necessary apparatus and attendance, for the disinfection of woollen articles, clothing, or bedding which have become infected, and they may cause any articles brought for disinfection to be disinfected free of charge." But this Section merely gives power to nuisance authorities to provide a suitable place; it does not compel them to establish it. When set up, it does not compel the poor to send their clothing to the place. The consequence of these omissions is, that the Section is a dead letter, and gives an air of reality to something very different. Even if the authorities were compelled to institute a disinfecting building, and the public were compelled to send to it their infected clothing, the evil attendant upon their transmission remains.

Inadequate, however, as are the Public Health Acts, they deserve the attentive study of the medical profession. It is to be deplored that they are permissive when they should be compulsory; that the authorities for carrying them out should be so varied. It is to be regretted, too, that a well-instructed and humane Government does not exercise a firmer influence over the anarchy, the greed, the ignorance of local governing bodies. But the energetic use of the powers given by the Acts would enable medical men to confer benefits on the public, the value of which defies estimation.

Birmingham, November, 1870.

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ANEURISMS IN THE VESSELS OF BOTH LOWER EXTREMITIES.

By R. A. Jamieson, M.A.,

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and one of the Honorary Surgeons to the Hongkew
Hospital for Chinese, Shanghai.

Tsang Sin-nau, a native of Niang-yuan, in the department of Ningpo, aged fifty-eight, but apparently much older, was admitted on the 27th March, 1870 into the Hongkew Hospital, under my care. He had suffered very great misery for three years. Several months before applying for help he had noticed swellings in his thighs, which gradually increased in size. Within forty days, however, the increase had been so rapid, and was accompanied by so much pain and powerlessness, that he was afraid longer to trust to the treatment (by stimulating plasters) of native physicians.

On admission, a pulsating tumour, about half as large again as an orange, was found in Hunter's canal, on the right side; and a tumour of similar character, but of smaller size, occupying the lower half and apex of Scarpa's triangle, on the left side. So much pressure was made upon the nerves of the anterior surface of the thighs that walking was almost impossible, partly in consequence of loss of muscular power, but chiefly from the intense pain caused by motion. Manipulation of the superficial arteries did not detect any symptom of general atheromatous degeneration, nor was there any evidence of thoracic or abdominal aneurism. The patient was so nervous and irritable that any attempt at keeping up compression would have been manifestly useless, added to which Chinese nurses could not be trusted for the purpose. He was therefore put to bed, ordered a generous diet, and fifteen minims of the tincture of perchloride of iron three times a day. Under this treatment his general health rapidly improved, but the tumour on the right side increased so quickly, with pain and loss of power, that I considered it advisable to ligature the superficial femoral without delay. Accordingly I did so on the 5th April. The limb was enveloped in cotton, and hot bottles applied to the leg and foot. Food and medicine as before, and opium as needed.

April 7th.—Wound nearly healed, except where the ligature passed through; leg quite warm, and skin sensitive; pain much diminished; tumour obviously smaller, quite hard and pulseless, with the skin, which had been tense and glazed, thrown into folds over it. Appetite excellent, and the patient in good spirits. From this day there was no more pain on the right side, and the power of moving the leg was gradually restored. Meanwhile the pain on the left side became daily more intense, and the tumour gradually more increased in size. On the 15th, the skin was glazed, but the pulsation seemed diminishing. Four days afterwards (19th), the tumour was as large as the head of a full-grown fœtus, but the pulsation had entirely disappeared, due, I thought, to extensive inflammation round or in the sac. (Compare Parker's case reported by Monro, Erichsen's "Observations on Aneurism," page 117.) There was no œdema of the leg, no diminution of temperature. It was now evident that no time was to be lost, but I wished to wait as long as I safely could, in order to give time for more perfect occlusion of the artery on the right side. Next day (20th), the tumour had visibly increased, but the skin, though highly glazed, did not seem to threaten immediate rupture. I ordered a grain of opium every three hours, and extract of belladonna to be applied to the tumour. I now quote from my case-book:—

21st.—Much fever from the constant pain; tumour enlarged to the extent of an inch in circumference since yesterday; ligature on right side still quite firm. Resolved to tie external iliac next morning, notwithstanding the risk of secondary hæmorrhage from the right femoral.

22nd.—The tumour now filled Scarpa's triangle. Having obtained the assistance of Dr. G. K. Barton, and of my colleague, Dr. E. Henderson, I ligatured the external iliac on the left side according to Abernethy's plan. There was no bleeding, and the state of emaciation in which the patient was much facilitated the operative measures. The usual precautions were taken, but four hours after, the toes were perfectly cold, although the foot and leg were but slightly below the temperature of the opposite side. However, in twelve hours, warmth was completely restored to every part of the limb. Opium in one-grain doses was administered at short intervals during the twenty-four hours after the operation.

23rd.—The patient announced himself as "quite well," except for the soreness of the wound. The opium was stopped, and milk, rice, &c., ordered. No pain whatsoever.

24th.—Slight fever; wound suppurating freely. Tumour on left side smaller and much softer. Castor-oil enema.

26th.—Right femoral pulsating violently. The patient is so thin that this is seen and felt more readily than it otherwise would be; but as it is it is most alarming. One grain of opium every fourth hour. During the night the patient suddenly began to sink. Pulse 146; respiration much hurried, and large collection of mucus in air-passages. Brandy, ammonia, and chloric ether brought him round for the time, and they were ordered to be repeated every hour.

27th.—Alarming symptoms all abated. Wound suppurating profusely. Ordered beef-tea in addition to the milk diet, and a pill containing one grain of opium and two grains of quinine every fourth hour, with a tablespoonful of brandy. Pulse 106.

30th.—Wound sloughing extensively, and there is apparently suppuration in or around the sac. Applied strong carbolic acid round the edges of the wound, and water dressing. Generous diet, with port-wine, &c. No moderate amount of traction on the ligature upon the right femoral has any effect in loosening it.

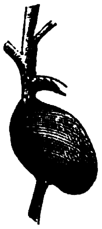
May 8th.—Ligature on right femoral artery came away (34th day). Wound in abdominal walls slowly filling up. Dressed it with lint soaked in a solution of ten grains of sulphate of zinc to one ounce of water. The tumour on the left side, although still large, has diminished considerably. Fluctuation can be detected at its base; but laying the hand over its surface gives the sensation of firmness and elasticity.

12th.—Wound again showing a tendency to slough at the edges. Pencilled it freely with nitrate of silver, and added a pint of stout to the diet previously ordered. Wound on right side quite healed, and tumour in Hunter's canal almost imperceptible.

16th.—Ligature on left external iliac came away (24th day). Wound looking perfectly healthy.

From this day the patient steadily improved, the wound at length seeming merely skin-deep, and rapidly closing. On the 28th, however, without any apparent cause, he suddenly began to sink; his extremities became cold, and the left foot and leg blue and œdematous. Stimulants of all kinds were tried, but to no purpose, and he died at 8.30 A.M., on the 29th. At 10.30 A.M. I prepared for a post-mortem, but, owing to the prejudices of the Chinese, nothing beyond the most cursory examination was possible.

An incision was made along the course of the left femoral from the brim of the pelvis to the opening in the abductor magnus. The tumour was not adherent anywhere to the skin. Immediately beneath the skin was a thick leather-like structure, consisting of the superficial and deep fasciæ, areolar tissue, and a little fat, all matted together by the pressure of the tumour. Having carefully removed this, the femoral artery was brought into sight, dragged inwards over the vein at the brim of the pelvis. The profunda arose one inch below Poupart's ligament, and the aneurismal tumour commenced a very little below this, but in nowise implicated the profunda. A dark, ecchymosed, softened structure that stretched over the anterior surface of the tumour, and was about one-tenth of an inch thick, was with difficulty recognised as the sartorius; but on tracing it to the anterior superior spine it was found attached to it by a few softened fibres, the remainder of the origin having evidently been torn away. Removing this, the tumour came into full view, with two collections of semi-coagulated blood on either side, immediately behind where the muscle crossed it. These were found to proceed from two small openings, each situated in the middle of a softened patch in the wall. Laying the tumour open from end to end, about a pint of blood, of the appearance of currant jelly, but of softer consistence, and showing no sign whatever of putrefaction, was removed. At the lower outlet was one clot somewhat more firm, moulded for about half an inch to the artery: but there was no attempt at organisation. Posteriorly and externally the wall of the tumour was adherent to the shaft of the femur. An irregular hard cord was the only trace of the abductors; and the quadriceps extensor, though not so nearly obliterated, was also wasted to an almost incredible degree. The tumour overlapped the lower outlet in a somewhat remarkable fashion. Both immediately above and immediately below the tumour the artery appeared healthy to the human eye. The femoral vein, as well as could be ascertained without dissecting the artery completely away, lay throughout internal and posterior to the tumour. Here the examination had to be discontinued, and I was unable to ascertain the condition of the artery at the seat of ligature.



I would draw attention to the rapid coagulation of the blood, and organisation and absorption of the contents of the aneurism on the right side, when the patient was in a state of very great exhaustion; to the satisfactory result of the ligature of the left external iliac, so far as the occlusion of that artery, diminution of the tumour, abolition of pain, and subsequent restoration of circulation through the limb, went; and, finally, to the almost complete absence of coagulation in the blood contained in the tumour on the left side when the constitutional state of the patient was vastly improved. In the absence of a complete post-mortem examination, I confess myself quite unable to account for the death of the patient, as it can hardly be ascribed to the slight extravasation of blood after the gradual rupture of the sac.

Shangai, June, 1870.

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COLLOID TUMOUR OF THE ARM.

By Charles Williams, F.R.C.S.,

Assistant-Surgeon, Norfolk and Norwich Hospital.

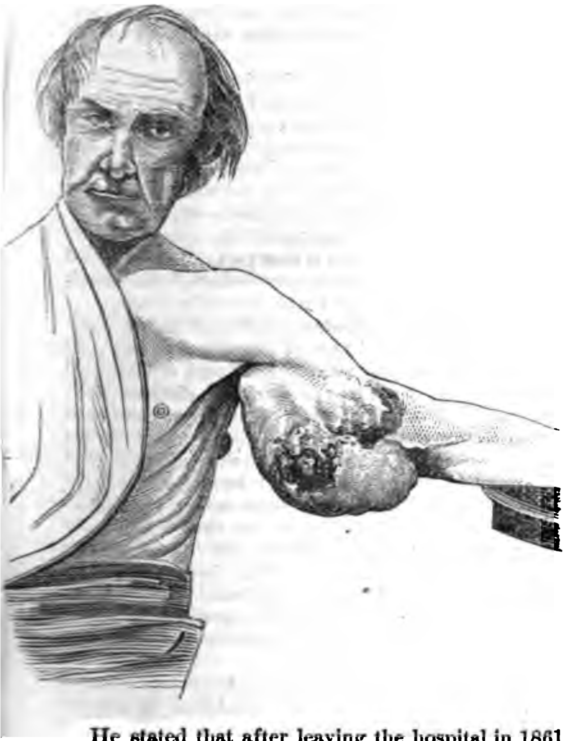
The tumour in this case was removed from the arm of a man who was in the first instance admitted into the Norwich Hospital under the care of Mr. Nichols, in the year 1860. At that time he was a strong, healthy farm-laborer, aged fifty-seven; and stated that about twelve months previously he noticed a hard swelling, somewhat larger than a horse-bean, in the left arm. The growth slowly increased in size, and on admission there was seen to exist, at the inner and upper side of the biceps, a prominent tumour, very movable, and simply lying beneath the skin in the cellular tissue. This growth consisted of three distinct tumours. One was on the outer and upper side, the size of a large walnut, flattened in shape, having a smooth surface, though its margin was nodulated; it was of stony hardness, and apparently unconnected with the others. The second, placed on the inner side of the above, was oval in form, very soft, distinctly lobulated, and had a few hard nodules on it; it had the feel of a fatty tumour, and was not smaller than a hen's egg. The third was perfectly hard and movable, and not much larger than a horse-bean.

In December, 1860, these growths were removed. No. 1 was found to be extremely dense, so much so as almost to resist the edge of the knife; it contained no juice, and no cartilage could be detected anywhere about it. Under the microscope, portions of this substance exhibited the fibro-membranous stroma of colloid, having very delicate, curved, and intersecting fibres, interspersed among which were granules of various sizes, and numerous oil-globules. No. 2 tumour was enveloped in a capsule, and composed of amber-colored material, having the consistence of jelly. The microscope proved it to be comprised of distinct, well-marked loculi, delicate fibres, and a few cells. No. 3 tumour was of the same consistence and appearance as the first. Surrounding these tumours was a substance of a reddish color, having the semblance of gelatine; this was found to contain the characteristic long, wavy fibres of colloid disease, unaffected by acetic acid.

My friend, Dr. Mackenzie Bacon, of Fulbourn, kindly sent a porion of these growths to Dr. Wilkes, whose examination resulted in the opinion that they were a variety of fibrous or fibro-plastic tumour, sometimes recurrent. "Its likeness to colloid gave rise to the name collonema and gelatinous sarcoma by the older surgeons. The structure is very beautiful. I have lately had under my care a case of this kind, in which the tumour sprang from the pons Varolii of a child. The hard portion, though apparently different, is in composition much the same, but the fibres are simpler and more compact. It is desirable to watch for recurrence in such cases."

With regard to the patient, the wound healed slowly, and, when nearly well, there appeared at its lower part a small growth, of the size of a nut. This was removed, and, on examination, was seen to be a cyst containing glairy fluid, which exhibited the usual reticulated character of colloid. After this the wound healed soundly, and the patient was dismissed in January, 1861.

In March of the present year the man applied a second time for admission into the hospital. The disease had recurred in his left arm, and had assumed very formidable dimensions; it occupied the whole of the anterior and internal aspects of the limb, and measured twelve inches and a half in length, and about twenty inches in circumference. In front of this growth was a smaller one, the size of an orange, hard and nodular, and was the first to make its appearance. Both were freely movable under the skin, to which they were unadherent, except at a spot of ulceration which had been produced by the friction of his clothes against the tumour. There was no enlargement of the axillary glands. He was in possession of excellent health, and had been so for many years. No member of his family had ever suffered from cancer.



He stated that after leaving the hospital in 1861 he remained free from any recurrence until 1866; he then noticed a small tumour at the lower part of the cicatrix. Nine months before admission another tumour appeared, somewhat higher in the arm; this grew very rapidly, and in that space of time had attained the size indicated above. On the 18th of March Mr. Nichols dissected out the mass, which was found to be lying immediately beneath the skin, having no attachment except to the superficial fascia. The hæmorrhage, chiefly venous, was very free.

When cut into, the tumour had a yellowish color and translucent gelatinous appearance. The microscope revealed fibres so delicate as to require a very good defining power to discern them. They interlaced in all directions, but sprang in the first place from distinct centres. Oval nuclei were aggregated in clusters amongst the fibre-meshes.

This case, I regret to say, terminated unfavorably thirteen days after the operation. The patient never for one hour rallied after its removal. No suppuration took place. The pulse remained at 100; tongue dry, and a hot skin. Neither rigors nor diarrhœa supervened.

At the post-mortem examination a large quantity of recent lymph and pus were found on the intestines. The pelvis contained a good deal of purulent serum. The omentum and all other organs within the thorax and abdomen were healthy, except the liver, which had a large clot of extravasated blood in its right lobe.

I have not, in accordance with general custom, described this specimen in the title of the paper as "colloid cancer," simply because I believe it to be very doubtful indeed whether there is any connexion at all between true colloid and cancer. So far as I can judge from the few cases that have fallen under my notice in hospital and private practice, and also from those recorded in medical books and journals, I am induced to believe that colloid is a disease quite *sui generis*, and is neither carcinomatous in its character, nor frequently associated with cancer; and when seen in combination with the latter, such occurrence may be explained by the supposition that in all probability colloid disease has appeared in a person having an hereditary tendency to cancer; and it has called into action the growth of this malignant disease much in the same way as the removal of an innocent tumour may be followed some time after by the growth of a cancer not far distant from the cicatrix. In this case the local injury caused by the removal of the non-malignant tumour called into play what was required for the production of a cancerous growth. Is it not a fact that "in persons the subject of cancer, at some period, sooner or later, the thoracic or abdominal viscera, or some organs distant from the seat of the primary development, become invaded with the same disease? On the contrary, in colloid disease, the primary growth being removed, another may reappear over and over again; yet the development is confined in most cases to the immediate site of its first appearance, or to some part of the member to which it grew."*

"Another characteristic of these fibro-plastic growths, and a very marked one, is this—that in all stages of their growth, whether before or after ulceration of the integuments, the lymphatic system is not involved in the disease. In not one case shall we find that the lymphatic glands of an organ in which these tumours were growing had ever become infiltrated on the seat of a similar disease."

We are therefore justified in giving a favorable prognosis in these cases—much more so than if they were the subjects of cancer; and we are also justified in removing growths of this nature wherever they appear, inasmuch as, if the disease be not radically cured, it is slow in its recurrence.

I might refer to notes of other cases of colloid which have fallen under my observation, but must content myself with briefly recording one; that of a lady in this city, from whose right breast Mr. Nichols removed a small hard tumour. It was the size of a walnut, and contained material of the consistence of liquid glue, having the characteristic appearances of colloid when examined under the microscope. Exactly two years later, I again assisted in the removal of a small elastic growth lying close to the axillary end of the cicatrix. The tumour proved to be a cyst containing colloid fluid. Five years later the disease had recurred in the form of a considerable tumour under the cicatrix. On examination after removal, it was found to consist of a large single cyst, having a thick, smooth, shining wall, and containing thin gelatinous matter. The lady is still living, and, I believe in good health. It is now nine years since the first appearance of her disease.

We must admit that there existed, in these two cases, no feature common to the natural history of a cancer. Had such been the case, in neither would so long a lease of life been granted.

Colloid disease is by no means common. It is, indeed, of somewhat rare occurrence. Cancer, on the contrary, is very common. The statistics of any hospital would prove this. At the Norfolk and Norwich Hospital I noticed in two years only 6 cases of the former to 148 of the latter.

Norwich, Nov. 1870.

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* Birkett, Guy's Hospital Reports, vol. iv.

TWO CASES OF
SUDDEN DEATH FROM UNUSUAL CAUSES

By J. Wilkie Burman, M.B.,

Assistant Medical Officer to the Devon County Lunatic Asylum, Exminster.

I venture to publish details of the two following cases, because I think they will prove not uninteresting to most members of the profession on account of their rarity, and because it is due to the interests of pathology that such cases should be placed on authentic record, and not passed by unheeded.

Case 1. *Rupture of Abscess of Cerebellum, causing Compression of the Medulla Oblongata and sudden death.*—William W——, fellmonger, aged thirty-eight. When admitted, on April 29th, 1868, was found to be suffering from simple dementia. His history, from admission up till about a week before his death, is as follows:—He was always harmless and free from excitement; he generally moped about, and seldom or never employed himself usefully; he was much given to turning "head over heels" in the airing courts and ward, and even in bed he could not resist this peculiar propensity. He was also in the habit of jerking his head backwards and to the right. On Nov. 21st, 1869, about five days before his death, he was observed sitting on a seat in his ward complaining of a violent pain in the head. The pain seemed to come on in paroxysms, for he frequently put his hands to his head, and screamed, groaned, or stamped his feet on the floor. It may be observed that at this time, as well as up to the time of his death, the patient took his food well, and exhibited no symptoms of constitutional disturbance; and, as no further information could be obtained from him on account of his demented condition, he was simply ordered to be kept under observation. From Nov. 21st to 26th he was, on several occasions, noticed to be in the condition above described; and, for two or three nights before his death, he frequently awoke the other patients who slept in the same dormitory as himself by his screaming, and by his getting out of bed and turning head over heels. On the night preceding the day of his death he was unusually restless and noisy in this especial manner. I may here state that it was not unusual for the patient to have two or three turns over in bed before going to sleep; but it was extraordinary for him to get out of bed to do so, or to scream so as to awaken the other patients.

On the morning of Nov 26th, at "getting up" time, the patient asked the attendant in charge of his ward to allow him to remain in bed as he did "not feel well," and his request was granted. About an hour and a half afterwards the attendant brought patient his breakfast, which consisted of a basin of flour-and-meal gruel with a piece of bread; and leaving him to eat it, went elsewhere. On the return of the attendant, about twenty minutes afterwards, to take away the basin, patient was found dead, being slightly livid, and a little froth existing about the lips. The occurrence was immediately reported to the medical officers, who saw him soon afterwards and made the following observations:—Patient was quite dead, and there was little or no lividity of the face or lips; all the gruel had been consumed as well as half of the bread, the other half lying on the bed near his right hand, which was outside the bedclothes; the left hand was under the bedclothes, which were undisturbed; and the patient was lying on his back. There was no bolus of food in the mouth or at the top of the pharynx, and, as the patient was not in any way paralysed, there was no reason to believe that he died from accidental choking.

Sectio cadaveris.—The head and thorax were alone examined. The lungs and heart were found to be quite healthy; the heart was flaccid.—Head: The whole of the cerebrum and its membranes presented a healthy appearance to the naked eye. On removing the brain *in toto* from the skull, after the usual manner, a quantity of greenish-yellow pus was observed to issue from the top of the spinal cavity and from around the cord at that part. The inferior surface of the left lobe of the cerebellum, which was free from adhesions, was found to be of a brownish-yellow color, and its substance softened and disintegrated. The affected part of the lobe had the appearance of a pouch containing fluid, and, on shaking it, visable fluctuation was caused. No distinct hole could be made out, but the tip of the finger could be passed through and between the disintegrated fibres into a cavity in the left lobe, which was duly exposed on section, and found to be about an inch and a half in diameter, and to be partly filled with a greenish-yellow pus of the same nature as that which had already been observed to flow by gravitation from the top of the spinal cavity. The abscess was not encysted, and had no lining membrane. The other lobe of the cerebellum was quite healthy, as were also the medulla oblongata, the spinal cord, and their membranes.

Case 2. *Sudden Death from Rupture of the Heart.*—Elizabeth D——, on admission, in July, 1862, was sixty-three years of age, and found to be suffering from melancholia. Her history, from admission up till the time of her death, is as follows:—She was always quiet and inoffensive, and generally assisted in the kitchen. She had continued to gain flesh ever since admission, and at the time of her death was very stout. She had become considerably demented during the last year or two of her life. On the evening of the 25th of April, 1870, at bedtime, while undressing, the patient fell down dead, About five minutes after she had dropped down she was seen by the medical officers, and found lying on her back on the floor beside her bed. She was partly undressed and quite dead; the face, lips, and tongue presented a livid appearance. She had taken her tea, as usual, about an hour and a half before going to bed, and had worked in the kitchen most of the day.

Sectio cadaveris.—The body was very well nourished, and the subcutaneous layer of adipose tissue over the thorax and abdomen varied in thickness from one to two inches.—Head: The brain was somewhat softer and more friable than usual, and all the sinuses of its membranes were filled with dark fluid blood. The skull was thicker than usual, and the dura mater adherent to it throughout the greater part of its extent. In all other respects the brain and its membranes were normal.—Thorax: On opening the pericardium it was found to be filled with blood, partly coagulated and surrounding the heart as a thick layer. The coagulum was adherent at some points to the inner surface of the pericardium, which was villous and shaggy from organised lymph. On removing the heart and upper part of the aorta from the pericardium, and clearing away the surrounding coagulum, a rupture of the anterior wall of the left ventricle was observed, about an inch above the apex and the same distance from the anterior ventricular groove. The external aperture of this rupture was about half an inch in length, and its longitudinal axis coincided with the direction of the external layer of muscular fibres. Around the external aperture the substance of the heart was ecchymosed. On opening the left ventricle, it was found to contain clotted blood, and on its inner surface, corresponding to the point of external aperture, the clot was found to be adherent to the ventricular wall and to other smaller clots extravasated into the muscular substance at that part. On removing the clots, the complete rupture in the ventricular wall was observed, and through the aperture the little finger could be readily passed. The remaining cavities of the heart contained fluid blood. The heart was larger than usual, and its cavities were dilated, and, when opened and freed from clots, it weighed eighteen ounces. Its substance was pale, fatty, and friable, and it was enveloped in an unusual amount of fat, to which mainly the increase in the weight of the heart was due, for the walls of the ventricles possessed little if any more than ordinary thickness. There was no aneurism or dilation of the aorta, and the lungs were healthy.—Abdomen: The liver was fatty and congested, and presented a "nutmeg" appearance.

Addendum.—These cases, which are mainly of interest from a pathological point of view, call for little remark; but it may be added, with regard to Case 1, that the abscess was "idiopathic" in so far as no cause was ascertained, the patient being otherwise in good bodily health, and never having had, so far as is known, any blow or injury to the head, either before or after admission. It would be interesting to endeavor to solve the problem as to whether there was any connexion between the patient's habit of turning "head over heels" and jerking his head backwards and to the right, and the lesion of the cerebellum which ended in abscess, did time and space permit; but I would fain leave this in the hands of better physiologists than myself, remarking that, although the insane have many peculiar habits, those of this patient are uncommon, at any rate so far as the experience of this asylum goes. Recollecting the results of Magendie's experiments on the cerebellum, when, by dividing the crus cerebelli on either side, he obtained rotatory and gyratory movements of the animals experimented upon, I cannot but think there may have been some connexion between the disease and the peculiar habit; for the softening and disintegration around the abscess, in this case, affected considerably the crus cerebelli on the diseased side.

Exminster, November, 1870.

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ON THE CURE OF THE CHRONIC PERFORATING ULCER OF THE BLADDER BY THE FORMATION OF AN ARTIFICIAL VESICO-VAGINAL FISTULA,

AS PRACTISED BY THE LATE SIR J. Y. SIMPSON.

By Lawson Tait, F.R.C.S.E.

Much as Sir James Simpson did to advance the profession to which he was devoted, it is to be feared that there has died with him a great deal that would have been of infinite value to humanity had it been saved for us. Active as he was in recording, and indefatigable in making research in the art of healing, those who knew him can easily understand that there were numberless observations made and conclusions arrived at by him which have been left unpublished. It is with the view of saving a little of these that I venture to refer to two cases in the treatment of which I was associated with him, and in which the successful operation employed was a device original with him, and, as far as I have yet been able to discover, quite new in the annals of surgery. Of these cases I have no accurate and detailed notes. I may therefore be pardoned if I only briefly, and, as far as details go, perhaps rather succinctly, narrate the cases.

The first was the case of a young unmarried woman who had been in robust health until her bladder symptoms commenced. These consisted principally of intense pain round the neck of the bladder, bad at all times, but especially so during the act of micturition. A few minutes of comparative ease was obtained after the bladder was emptied; but the pain steadily increased as the viscus became distended, and she had again to pass through the terrible ordeal of its evacuation. This state of matters went on for many months, and every kind of sedative treatment was adopted, all kinds of injections into the bladder tried, and the ingenuity of her many medical attendants taxed to the utmost, without avail. The urine was always alkaline, but only slightly so; and it contained but a very small quantity of pus, with a trace of albumen. She at last was placed under the care of Sir James Simpson; and, as we came one day together from her bedside, he reasoned to the effect that the indication in her case was to put the bladder in a state of complete physiological rest; and to secure this it would be necessary to establish an artificial fistula. He carried his idea into execution, and with the most brilliant result; for the pain was at once relieved, and in a few weeks the ulcer was healed, the fistula closed, and the woman returned to her country home perfectly recovered.

The second case was that of a sempstress who, if I remember rightly, was a long time under the care of my friend Dr. Warburton Begbie, and was transferred by him to Sir James's ward in the Edinburgh Royal Infirmary. All other treatment having failed, an artificial fistula was established, with a result equally satisfactory as that obtained in the other case.

The pathology of these cases is well illustrated in another which is now under my care, in the person of a lady who has come to me from a long distance to be the subject of this operation. She is a young married woman, and had been in perfect health until her marriage, five years ago. She has had no children, and has suffered for more than four years with symptoms perfectly similar to those described in the first case. The only relief she obtains is from the injection of a strong solution of nitrate of silver, and the administration of this is so painful that it has to be effected under chloroform. Under my direction a catheter has been introduced into the bladder in order to irritate the condition arrived at by the establishment of a fistula, but the instrument cannot be retained more than a few minutes; and I know of nothing short of the fistula which will cure her.

The performance of the operation is easy enough: it is effected by introducing a grooved staff along the urethra, and slitting-up the posterior fourth of the canal and about an inch of the posterior wall of the bladder. There is no difficulty in getting the fistula to close after the ulcer has healed; the difficulty is to get it to remain open long enough. The *rationale* of the operation is quite philosophical; but in principle it is unlike anything in surgery with which I am acquainted, except the establishment of an artificial fistula in the male perineum in order to promote the successful performance of an extensive urethroplastic operation, which Sir Henry Thompson was kind enough to show me a few months ago.

The special form of ulceration by which these three women have been affected is referred to briefly by Rokitansky as a limited perforating ulcer; and, as I was once fortunate enough to be present at a post-mortem examination of a fourth case, in which the pain had caused death, I am in a position to verify that distinguished pathologist's views. In anatomical characters, as well as in semeiology, the ulcer closely resembles the perforating ulcer of the stomach; and Rokitansky tells us that in the bladder, as in the stomach, one of the means of the fatal issue is by complete perforation ending in peritonitis. It is somewhat curious that all of the four cases which have come under my own notice have been women, and comparatively young—circumstances which, together with others, remove it far from the ordinary catarrhal ulceration of the mucous membrane of the bladder. Of many post-mortem examinations of cases of the latter disease which I have made, I do not remember ever to have seen one in which the muscular coat was affected; the mucous coat seems to be invariably dissected cleanly off the subjacent tissue, and the ulceration is limited neither in extent nor locality. The perforating ulcer seems most frequently to exist at the neck of the bladder.

I have never met with or known of a case resembling these in a male patient. Were such a case to occur, should we be warranted in cutting him as if we wished to remove a stone from his bladder? I believe we should; for, if the disease is so terrible in a woman, what must it be in a man? and how much less likely the latter would be to derive benefit from any other form of treatment.

In surgical practice, as in almost everything else, it is extremely difficult to introduce anything really new, and it may prove that this treatment for the perforating ulcer of the bladder may not be so novel as I suppose it to be. It cannot, however, be very generally known; and if by making these two cases of Sir James's public I shall at any time be able to place in the hands of any of my brethren a successful means of treating a terrible disease, my object will be accomplished.

Waterloo-street, Birmingham, Oct. 1870.

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TYPHOID FEVER AND DYSENTERY AT THE SEAT OF WAR.

By Hermann Weber, M.D., F.R.C.P.,

Physician to the German Hospital.

As the medical incidents of the war between France and Germany are of some interest to most of the readers of The Lancet, I beg to lay before them part of a letter just received from Dr. Wibel, one of our resident medical officers at the German Hospital. Dr. Wibel belongs as "Battallionsargt" to the second principal field hospital of the Bavarian army, and is stationed at one of the barrack hospitals near Nancy. In his letter, dated November 17th, he says:—

"Though we have no wounded, we attend a great number of cases of typhoid fever, dysentery, and complications of both diseases, affording plenty of work of the greatest interest. Our barrack hospital forms now a complete medical colony. We have separate localities for the administration, kitchens, cellars for washing and drying, &c.; we have a chapel, convalescent rooms, quarters for officers and medical men, a dispensary, even our own public-houses—i. e., 'Marketenderchalets.' There is a regular omnibus serving to and from the town twice a day, and a temporary railway line facilitates the transport of the sick and wounded. We have also at last good stores of food and other necessaries, but we fear they will soon be exhausted. Our greatest drawback is bad meat, which is 'required' of the town; and this is not improved by the manner of cooking. On the whole, however, the patients are doing well; they receive the most necessary things, though there is room for further wishes. Thus we not rarely are short of eggs, milk, and wine; and cigars begin to become very scarce.

"We have had many severe cases of typhoid fever and dysentery, and most troublesome is the complication of both. Exanthematic typhus in an unmistakable form we have not had, though we had cases in which the line of distinction between this and typhoid was difficult. During the last weeks the number and severity of epidemic diseases were diminished; and especially since the capitulation of Metz the health of the Army is improved. Professor Niemeyer is in constant communication with us, and performs many post-mortem examinations. We have also formed a Medical Society, counting at present thirty-four members. Niemeyer being first, and Dr. Krulle second president, Dr. Hitzig, of Berlin, and myself, acting as secretaries. Four months ago I had not dreamt that I should now be a member of a German Medical Society at Nancy. We hold our meetings every Saturday in the Lyceum; and in addition to the usual communications a weekly report is given of the movement of diseases during the past week. I wish you could see the specimens of complications of dysentery and typhoid fever; they are, indeed, very interesting. As to the treatment of disease in our barracks, it is, in general, symptomatic: in typhoid fever, cold baths, quinine, and roborantia of all kinds; in dysentery, opium, tannic acid, morphia, calomel, and various remedies for allaying pain. I have not seen any good effect of the latter on the course of the disease. The diarrhœa and the pain, it is true, are checked by large doses, but the collapse occurs all the same; the patients become unable to take food, and one is at last compelled to discontinue the narcotics. I confine myself at present to morphia, milk, eggs, hydropathic bandages, and strong wines, as I have convinced myself that the diarrhœic motions do not cease until the croupous and diphtheritic masses begin to be thrown off. In some desperate cases of dysentery I have used with rather satisfactory results—one case terminated fatally—enemas of tincture of opium and diluted carbolic acid, coupled with milk diet; and in one case I gave carbolic acid also internally. During, I will not say through, this treatment the exudation was cast off in perfect tubes. The diarrhœic motions still continued for some time, but the patients gradually recovered; while other patients, apparently not worse, under different treatment, succumbed.

"Repeatedly convalescents from typhoid fever were attacked by dysentery. In typhoid fever lobar pneumonia was frequent, while cerebral complications were rare; the typhoid roseola was often very abundant.

"Of 60 male and female attendants, 12 were infected, generally not seriously, with typhoid or dysentery; of 15 medical men, 1 contracted typhoid, 2 dysentery. I have always been myself quite well, taking horse exercise, clothing myself very warmly, living very regularly, without depriving myself of the excellent grapes of this neighborhood.

"A few days ago we had the first snow and ice. The barracks answer admirably so long as our iron stoves are kept in good order and heated with coal. Each barrack has forty beds, and four stoves; and by means of double walls, and moss between them, we can keep the night temperature at between 10° and 12° [probably centigrade].

"The disinfection of motions &c. is performed by chloride of lime and sulphate of iron; all the straw once used is burnt immediately. We have our own water-supply, with abundance of running water."

I need not point out the interest attached to the simultaneous occurrence of typhoid fever and of dysentery in the same person. I have had myself the opportunity of witnessing this fact in a man who, while on the point of recovering from typhoid fever, was seized with disentery, then epidemic at Bonn, to which complication he succumbed, the small intestines offering the typhoid, the rectum and large intestines the dysenteric changes.

The treatment of dysentery mentioned by Dr. Wibel is in accordance with what I saw myself in the neighborhood of Metz and Pont-à-Mousson. Some of the medical men, however, were in favor of the plan which we had ourselves found most useful—viz., to give in the earlier stage, once or several times, aperients to unload the bowel, and thus diminish congestion, and to use at the same time, or afterwards, local anodynes, by enemas or suppositories, or subcutaneous injections, feeding the patient almost entirely with iced milk.

It reflects credit on our profession that the medical men of the different parts of Germany, temporarily stationed at Nancy, excessively hard worked as they are, and in the midst of the most stirring events, have formed a Medical Society, and hold weekly meetings to exchange the results of their experience, to assist and teach one another, and to cultivate good fellowship.

Grosvenor-street, Nov. 22nd, 1870.

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PERMANGANATE OF POTASH IN THE TREATMENT OF GONORRHŒA AND GLEET.

By Thomas Warden, M.D.

In proof of the opinion contained in this paper I regret that I cannot produce a respectable number of cases to confirm my belief that the diseases mentioned at the head of this article can be cured in about a couple of days. I have delayed putting my small experience of the treatment in print in the hope of getting more evidence as to its utility; but really nowadays it is quite rare to get a case of gonorrhœa to treat. I refer to the Mediterranean station. About the years 1860 to 1868 the cases of gonorrhœa and syphilis were rife in most of the ports; but since that time they have been steadily decreasing, and this is entirely due to the regular inspection in the French and Italian towns and ports. In Turkey and Egypt, where there is, I believe, a nominal supervision, we find syphilis more frequently than gonorrhœa.

During the months of April, May, and June I was doing duty in her Majesty's ship *Hibernia* at Malta, where disease is at a minimum; but occasionally sporadic cases of disease make their appearance, where contracted or how imported has never been properly found out. I believe the merchant seamen must be blamed for their introduction, because with the periodical inspection of the men of the Royal Navy it is hardly possible that they should communicate it. I do not know the regulations in the army there, but I believe inspections are held in it also. The disease is easily kept in check in Malta, because the public women are comparatively few compared with the number of men who go on leave; and, therefore, several go to the same house and frequent the same woman, and then, when he or they have the disease, you can arrive at the name of the woman, who is arrested by the police and lodged in hospital on receiving a letter from the surgeon of the ship detailing the house and name. On the sick-list of the *Hibernia* I found a marine who had been under treatment for twenty days, which consisted in pursuing the recognised plan of giving salines, copaiba, and injections of different strengths and substances, with the usual results in these tedious cases, where the constitution is beginning to suffer from the long-continued discharge and confinement. This case was really becoming an opprobrium, and we felt anything but satisfied with our treatment. I decided then on trying the permanganate of potash, which I tentatively gave in five grains to the ounce as an injection at least four times a day. This gave rise to no pain or other inconvenience. Since then I have administered it in as many as fifteen grains to the ounce. The result in this case was that the man was well in two days, or after about eight injections.

In the course of a fortnight this man went on leave, and came back with a gonorrhœa. The same treatment was pursued, with a precisely similar result. I prescribed it also in the case of an officer who had had the disease for six weeks. The discharge in this case was more gleety, and his health was beginning to suffer. On this occasion the cure took six days, but I do not think he attended fully to the directions I gave him; neither was he regular in its use.

I regret that this is all the evidence I can bring of the good effects of the permanganate; but I see it is needless for me to wait for more cases, so I place this imperfect experiment before the profession. I do not vaunt these cases as being conclusive, because their paucity will hardly warrant me in claiming for this remedy the name of specific; but I bring them forward in order that those who have more opportunities of treating the disease may be tempted to try the permanganate; and I hope the results will be as satisfactory in their practice as they have been in my three cases. From what I have seen of its action, I feel very sanguine concerning its efficiency. I only ask that those who make use of it will be kind enough to publish their cases, whether attended by success or the reverse.

Now a few words may be necessary as to the method of using the injection. It must be remembered that the permanganate of potash loses its virtue by admixture with any extraneous matter, or exposure; therefore it is advisable to mix the injection immediately before using it. This ought to be done in either a glass or porcelain dish, perfectly free from any greasy matter; and the syringe must be in a like state of purity. If care be not taken in its use the patient's linen will be stained; and this should be remembered in private practice.

I mentioned my cases to some medical friends in the Mediterranean, and requested them to try it, and communicate the results; but I suspect they also suffer from the dearth of cases of which I, pardonably I hope, complain.

While I am writing on this subject it may be mentioned that the infrequency of the disease shows most favorably for the working of the Contagious Diseases Act; and it would be well if this communication could be perused by those whose time is taken up in expressing opinions and flourishing their names in print in connexion with a subject they do not understand, nor ought to know anything about. Until lately I had no idea that "ladies" were so conversant with the diseases resulting from promiscuous intercourse.

Royal Naval Hospital at Haulbowline, Oct. 1870.

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A CASE OF

PREGNANCY AND LABOUR COMPLICATED WITH PARAPLEGIA.

By W. H. Borham, L.R.C.P.E. & M.R.C.S.E.

The sciences of medicine, surgery, and midwifery can never approximate to exactness. New events are constantly occurring in the various forms of diseases. The very character of some diseases assumes different phases in a cycle of years; and the *modus operandi* of the various pharmaceutical remedies tends to make the science of medicine less exact. With surgery we are equally at war with exactness. For instance, two similar falls of equal force, from the same height, with the same amount of velocity, and both parties alighting in positions alike on the ground, will produce accidents varied in character: one will suffer from compression of the brain, and the other receive fractured spine or ribs. The treatment varies for such surgical cases, and must be met according to the exigencies of the case and their individual features. Books cannot teach the appropriate treatment of every case. But I believe it to be in the power of every medical man, however humble may be his practice or ability, to add something to the general stock of professional knowledge to make up for this want of exactness. Cases must crop up in the general routine of practice of such a class as to convince us of the rarity of their nature; and the least the science of our profession can expect of us is a short report of such cases, so that others may form an opinion on a matter which might be likely to occur to them in their professional career.

The following case, epitomised with brevity for the sake of space, possesses features of great interest and rarity:—

In September, 1868, Mrs. R——, aged thirty, the wife of a small farmer, was six months advanced in pregnancy with her second child. She complained of pain in her back and loins and down the thighs, and she limped in walking. A month later she was taken suddenly with total paralysis of both legs, and complete loss of feeling from the toes to the lumbar region followed. The uterus, bladder, and rectum joined in this unfortunate condition, involuntary secretions emanating from these organs. In the beginning of November a large sloughing phagedænic wound made its appearance over the sacrum, connecting itself by small channels with the spinal marrow. On the 10th of this month the full term of utero-gestation was considered to be accomplished, and no indications of pains appeared; but offensive discharges now came from the womb in abundance, and purulent absorption was fast threatening. On the 12th I ascertained that the os was relaxed, powerless, and lifeless; it yielded almost as putty would to the touch, pitting like the skin of anasarca does to the pressure of the finger's tip. The patient could not feel my manipulations, and I introduced my hand gradually into the uterus (little force was necessary), and grasped the feet of the child, turned, and delivered the woman at once of a putrid child. Version, usually an operation of a sensitive nature to the patient, was accomplished without the mother being aware that I even touched her. She gradually sank, and died on the 20th, eight days after delivery; and during this time the wound in the back rapidly increased till it attained the large size of a dinner plate. No secretion of milk or other symptoms of a newly made mother came on after delivery.

Many features of interest will be suggested by this case. The woman in the early period of pregnancy was quite well, and received no fall or harsh treatment. She was comfortably nourished, and well to do. What caused such sudden disease of the spine and loss of power? Could pregnancy in any way? If so, where would be the sympathetic channel from the uterus to the sacrum?—and what would be the structures traversed? The uterus and spine must have been in a normal condition when conception occurred. When and by what powers were these normal structures made unhealthy? The sympathy between the breast and uterus was completely severed. Where was the point, and what were the structures involved? In October, when paralysis of the mother's uterus set in, the *movements* of the child stopped synchronously. Still life went on for some weeks, as I detected the fœtal heart pulsating. Did the mother's paralytic blood, by passing through the fœtal circulation, cause the childs *movements* to cease? If so, how did the blood affect the child's spine? I could not say exactly the precise date that nutrition ceased on the part of the child, as the loss of vitality was so gradual, the first real indication of its death being the putrid discharges from the uterus. Why was not the child nourished up to its full term, as the mother's circulation was tolerably good up to the birth of the child? I confess many of the answers must be mere guesswork.

Some medical men have told me that they have attended every class of difficult labours; perhaps they will explain the abnormal conditions in the above case. But I must confess, after attending some thousands of cases, I still find the science of midwifery is not exact.

Halstead, Essex, Nov. 1870.

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ON

THE TREATMENT OF CHOREA BY ETHER SPRAY TO THE SPINE.

By John Rose, M.D.

In the May number of The Lancet for 1870, page 288, two successful cases of chorea, treated by ether spray at Lyons, are recorded. I have the pleasure of adding another case, in the person of a girl thirteen years of age, a patient of the Chesterfield Hospital. She was anæmic, and had had rheumatism; but there was no trace of heart disease. I used the anæsthetic ether spray specially prepared by Messrs. Burgess, Willows, and Willows, London. I applied it along the spine four or five minutes at each time; and after fifteen sittings a very marked improvement took place, followed by complete recovery, for which the girl's relatives were most grateful.

The case was a very severe one, and I have no doubt of the efficacy of the ether spray, which is, I think, worthy of further trial in this unpleasant and not uncommon disease, especially when treatment by the bromides of potassium and ammonium, preparations of iron, zinc, arsenic, conium, and, last but not least, chloral hydrate fail. The late Dr. Alison, one of the most philosophical and best practical physicians who ever lived, used to recommend counter-irritation along the spine; and, after enumerating other modes of treatment, candidly said that it must always be remembered that in some cases, where several of these measures have been ineffectual, the disease has spontaneously subsided, particularly under the influence of country air and summer weather. The late Dr. Addison recommended electricity to be applied to the spine; and records several cases successfully treated in this way, after drugs had failed. "I believe," says our medical Cicero, Sir Thomas Watson, "that many cases of chorea—most cases—would at length get well without any aid from physic. I believe, also, that many of the boasted specifics have been quite innocent of any share in the recovery of the patients to whom they were administered; at the same time I am quite certain that treatment has a great influence over the disease." It has long been known that the shower-bath and cold sousing are of great value in chorea, often acting like a charm; and the *rationale* of the action of the ether spray, both as a sedative and a tonic, is, I presume, physiologically speaking, partly at least, the same. It doubtless produces a strong impression on the nervous system, interrupting the series of morbid actions going forward. Perhaps some medical Newton may, ere long, arise who will be able to throw more light on this obscure subject.

Should the ether spray, in other hands, really prove useful in chorea, humanity and the medical profession will, from a somewhat unexpected quarter, be again largely indebted to the practical genius of Dr. Richardson. As there is probably in this disease depraved and irregular action of the nervous force, which is incessantly produced by the cortical substance of the cerebellum, and distributed to the motor regions of the cord, I venture to suggest that it might be useful in intractable cases to shave the lower part of the back of the head, and apply the ether spray in that place as well as along the spine.

Although chorea is in general a disease of youth, it is not always so, as has been remarked by former observers. About three years ago I saw a case with my friend Mr. Bradley, of Kidderminster, in the person of a man seventy years of age, the symptoms being persistent until the patient's death.

Chesterfield, Nov. 26th, 1870.

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UNSUCCESSFUL OVARIOTOMY.

By W. Y. Veith, L.R.C.P. & L.R.C.S. Edin.,

Surgeon to the North Riding Infirmary.

As we so seldom see recorded unsuccessful operations, and believing that much may be learnt from them, I am induced to forward the following case, which will, I have no doubt, be of use in pointing out what may be expected in what is to all appearances a favorable case for operation.

Mary M——, aged twenty-six years, was admitted into the infirmary on the 2nd of September, 1870, suffering from abdominal swelling. She first noticed the swelling on the right side six months ago, becoming pregnant about the same time, and aborted four months afterwards. In appearance she was pale, emaciated, and had an anxious expression. The upper lip was unusually hairy; abdomen distended to the size of a nine-months' gravid uterus, more prominent on the right side, and evidently filled with fluid. Pulse 100, rather weak; bowels obstinate; persistent vomiting. Diet: milk, beef-tea, and brandy and soda-water.

Sept. 10th.—Bowels opened by castor oil and warm-water injections. The sickness still continues. Pulse 120, weak. Tumour increasing in size, and very painful; pain being slightly relieved by hot fomentations and turpentine stupes. I consulted my colleagues on Sept. 12th, the general opinion being that the case was one not without hope of a successful result. It was therefore determined to operate at once.

An incision was made from two inches below the umbilicus to the pubes, exposing a thick membranous cyst, which, much to my horror, was evidently extensively adherent. A canula and trocar were inserted; but very little fluid escaped. Finding it impossible to draw off the contents, an incision was made into the tumour, when out gushed half a bucketful of fibro-gelatinous clots, varying in color from sandy-yellow to the dark red of venous blood, mixed with straw-colored serum. The adhesions to the parietes readily gave way, exposing near the apex of the tumour two small additional cysts, having very much the appearance of knuckles of gut distended with fluid. It now became quite evident that to separate the cyst from the viscera was impossible. I accordingly sponged it out, and stitched up the abdominal incision. The patient was in a state of collapse. Stimulants were freely administered. She however died in six hours.

Post-mortem examination revealed a condition of the transverse colon approaching gangrene. The adhesions were such as to make it very difficult to separate the cyst from the smaller intestines, and quite impossible to remove it from the pelvis without taking with it the bladder, uterus, and a portion of the colon, which appeared incorporated with the cyst.

Middlesbrough, Yorkshire, Oct. 1870.

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A CASE OF

INDUCTION OF PREMATURE LABOUR BY MEANS OF THE UTERINE DOUCHE.

By W. Whalley, M.R.C.S. &c.

The recent communications on the above method of inducing premature labour contained in The Lancet induce me to give publicity to the following case.

The subject of this operation, Mrs. E——, aged thirty-four years, had been delivered thirteen times at the full term, her labours being usually lingering and difficult. On the last three occasions craniotomy was resorted to. The causes of difficulty in the above case were referable to a diminution of the cavity of the pelvis at the brim in the conjugate diameter, and to the fœtus being larger and more strongly ossified than usual. I delivered the patient on two occasions. In both, on arrival, I found the membranes ruptured and some portion of the head protruding through the brim of the pelvis, while the principle bulk remained above. I applied the long forceps without difficulty, but was unable to advance the position of the head. In both, the uterine parietes so strongly embraced the fœtal body that version could not be practised with impunity. The patient consulted me again in August last, when about six months and a half advanced in pregnancy. With some difficulty I obtained her consent to allow premature labour to be induced at the seventh month. Accordingly, on September 7th, at 1 P.M., being exactly seven months since she last menstruated, I injected, by means of Barnes's syringe, a gentle stream of warm water against the os uteri for about five minutes. On September 8th, at 5.30 P.M., I introduced the tube of the syringe about an inch within the os uteri, external to the membranes, carefully detaching the latter, and then injected a stream of warm water for about six minutes. On the following morning, about 6.30, I was summoned to the patient, and found the os completely dilated, and the membranes protruding into the vagina. On rupturing them a foot and funis presented; the pains were stong and frequent, yet more than forty minutes elapsed before delivery could be effected. The fœtus was well formed, but exhibited no signs of life when born. The usual means of resuscitation were practised for a considerable time, but proved unavailing. The mother made an excellent recovery.

The above case affords additional evidence of the simple, easy, and efficient mode of inducing premature labour by the aid of the uterine douche. Had the presentation been natural, the child would undoubtedly have been born living. Notwithstanding this disappointment, it was gratifying to find that the patient, who had been three times subjected to all the suffering and danger attending the operation of craniotomy, fully appreciated the success of the operation.

Bradford, October, 1870.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

KINGS COLLEGE HOSPITAL.

POPLITEAL ANEURISM; FAILURE OF FLEXION AND COMPRESSION; INCISION OF THE SAC, AND LIGATURE OF THE ARTERY.

(Under the care of Mr. Henry Smith.)

Instances of aneurism are now and then met with where, either from the position of the tumour, or from certain conditions occurring during treatment, it is needful to have recourse to the old operation of laying open the sac and tying the vessel at the seat of the disease. It is well known that the late Mr. Syme a few years since adopted this plan with success in one or two remarkable cases of aneurism which did not well admit of other treatment. Mr. Heath, also, laid open a femoral artery some time since at University College Hospital, and tied both ends of the artery.

On the 12th inst. Mr. Henry Smith laid open a large aneurismal tumour and ligatured the open end of the artery in an interesting case, of which we briefly give the history. The patient, who had been a soldier, and was only twenty-seven years old, was admitted into the hospital on Aug. 5th, with a swelling in the left popliteal space about the size of two fists. It had existed only a month before admission, and it pulsated so feebly that doubts had been entertained as to the nature of the tumour. On examination, however, it was found that the pulsation, although feeble, was distributed equally over the whole contour of the swelling, which was therefore concluded to be an aneurism; and Mr. Smith determined to try to cure the disease by the flexion method. The limb was carefully bandaged, and the leg bent well upon the thigh and retained by suitable apparatus. At the end of two weeks the treatment appeared to be successful, the pulsation having ceased and the tumour become smaller. The limb was then allowed to remain in its natural position. Three days afterwards, however, a sudden change had taken place: pulsation had returned, the tumour had become enlarged to double its former size, and the tissues around had become infiltrated, so as to lead to the supposition that the aneurism had become diffused. The limb below kept warm and free from œdema, and the patient suffered no constitutional disturbance whatever. Mr. Smith then determined to apply pressure. Carte's tourniquet was first applied, but it was not borne well. Signorini's was next used, and pressure, was maintained to the femoral by the alternate use of two pads. This instrument was borne well, and after a fortnight the pulsation was completely arrested. The pressure was, however, kept up until Oct. 15th, when suddenly a great enlargement of the tumour took place, accompanied by severe pain. On the appearance of these symptoms the tourniquet was removed, and evaporating lotions were applied. On Nov. 1st the dressers' report stated that the tumour was becoming smaller, and that pulsation had once more entirely ceased. On November 3rd the tumour again increased in size, and on the 7th it was still larger and very painful, with very distinct fluctuation. The leg had become œdematous, and the tissues above and below the tumour much infiltrated. On the 10th Sir William Fergusson examined the case with Mr. Smith; and, as it was evidently needful that some action should be adopted, agreed with him in the view that the tumour should be freely laid open. Accordingly, on the 12th, Mr. Smith made an incision into the most prominent part of the tumour, which was as large as a man's head, and a quantity of semifluid and coagulated blood was discharged. The opening was then enlarged, the hand introduced, and large quantities of clots, fibrinous layers, and purulent fluid were rapidly removed; arterial blood then immediately filled the lower portion of the large cavity, and it became at once apparent that the main artery was still open. Its orifice, however, could not be seen until the opening was considerably enlarged. The upper end of the artery was then distinctly seen behind, and to the inner side of the femur. It was seized with a pair of dressing forceps, and after some little trouble a ligature was thrown around the vessel as high up as possible. The operation was much facilitated, and was rapidly completed, thanks to the able assistance of Sir William Fergusson and Mr. Wood. Digital pressure was maintained on the artery at the groin, and the patient lost so little blood that he was comparatively but little exhausted. Before the wound was dressed, the large cavity was well syringed out with a strong solution of chloride of zinc.

In the course of his remarks on this case, Mr. Smith stated that flexion and compression having failed to effect a cure, although they both had at first appeared to promise success, and as without any assignable cause the aneurism had suddenly enlarged enormously, and shown signs of having burst and suppurated, the constitutional powers of the patient meanwhile beginning to fail, he had been led to decide on operating. In the absence of mortification in the lower limb, amputation had not been warranted, and the absence of pulsation in the tumour had not indicated any necessity for ligaturing the artery in the thigh, and as there was reason to suppose that suppuration was going on in the tumour, he had thought it best to lay it open. As they had seen, it then became evident that the main artery was not plugged, but only partially closed by clots. This had necessitated ligaturing the open vessel, which had appeared to be healthy. Had he not been able to tie the artery at the site of the aneurism, there would have remained the alternatives of ligation higher up in the thigh, and amputation.

On the 22nd inst. the ligature came away, and in every other respect the patient had progressed without an unfavorable symptom.

CASES UNDER THE CARE OF DR. GARROD.

In December last, Dr. Garrod showed us, among others, the following cases:—

A child who had been admitted suffering from moderately severe croup. He had been treated by the inhalation of steam and the constant application of hot sponges to the larynx; he had made a good recovery, and was about to be discharged.

The subject of an empyema, which, on being tapped, had discharged over twenty ounces of pus. Three days later the puncture had to be renewed, and sixty ounces more were evacuated; since then the affected pleura had been daily washed out with a solution consisting of one part of carbolic acid to eighty of water. At the time of our visit, the cavity had so shrunk as to receive no more than six ounces of fluid; the day before, the strength of the solution had been increased to one part of carbolic acid to sixty of water; some smarting of the side and a rise of temperature of one degree had followed this alteration, but Dr. Garrod did not consider it necessary to return to the use of the weaker solution.

Two cases of scarlatinal dropsy, which had been successfully treated by hot baths and packing. The patients were first placed in a hot bath, and on leaving it they were, while still wet, enveloped in a hot blanket, and laid in bed beneath one or more other hot blankets, so as to maintain, for a time, a profuse perspiration. The sweating was at first made to last about a couple of hours, but, as the dropsy disappeared, the duration of the process was gradually reduced to half an hour. When all puffiness had disappeared, a treatment by small doses of sulphate of iron was substituted until all trace of albumen in the urine was lost.

CLINICAL REMARKS ON A CASE OF LEAD-POISONING.

Another case was one of lead-poisoning, in connexion with which Dr. Garrod afterwards delivered a lecture, of which we give the following notes:—

The patient was fifty-nine years of age and an organ-pipe-maker by trade. During the earlier part of his life he had drunk a good deal, chiefly beer and gin, while engaged in casting the metal. During the four years preceding 1858 he had had several rapidly-succeeding attacks of gout in the great toe of the left foot. Then, in 1858, weakness and wasting of the forearms ensued, and ended in wrist-drop. He came under Dr. Garrod's care, and was enabled to resume work in about two months. In 1863 gout again attacked the great toe, and shortly afterwards extended to the ankle, knee, and elbow of the same side. Seven months ago he had another, and his last, attack of gout. In 1867 the wrist dropped again, and, after three months of treatment, he once more returned to his trade, at which he continued to work without intermission until the onset of the present attack, the first symptoms of which—wasting and loss of power of the forearm—made their appearance in June last. In September he was obliged to leave work. On admission he was pale and anæmic, but fairly nourished. He presented a well-marked arcus senilis, and wasting and loss of power of the fingers, thumb, forearms, arms, shoulders, and thighs. The affection of the left upper extremity was more severe than that of the right; having lost all his teeth, no blue line was observable. The urine contained a trace of albumen.

Dr. Garrod drew attention to the following points presented by this case:—(1) As to *colic*. The patient had never suffered from colic or constipation. A brother of his, who had worked at the same trade, and had died some years ago, had been subject to severe attacks of abdominal pain, and nearly all his fellow-workers suffered occasional attacks of colic. Dr. Garrod stated that, out of about a hundred cases of lead-poisoning which he had recorded there were two or three in which no colic had occurred. (2) This man had not inherited *gout*. There was no history of it in the family; but both he and his brother had had attacks of it. The introduction of lead into the system had a tendency to prevent the excretion of uric acid, and it was found that about 33 per cent. of people who suffered from gout had been poisoned with lead. One of the patient's ears presented a number of white spots, which were subcutaneous concretions of urate of soda. (3) The influence of the poison on the *kidneys* was to be noticed. It had a tendency to produce a gradual contraction of their structure. When the patient was under treatment twelve years before, the specific gravity of his urine had been as low as 1010; it was the same now, and in addition presented, this time, a trace of albumen. (4) The *muscles affected*. In his former attacks the mischief had extended no higher than the extensors of the forearm; but this time the arm, shoulder, and thigh were affected. This more extensive effect on the muscular system was especially liable to occur in cases where the train of symptoms was rapidly developed. (5) With regard to *treatment*, Dr. Garrod found, on referring to his notes, that he had unknowingly adopted precisely the same as on the occasion of the first attack. He had ordered him a mixture which contained ten grains of the ammonio-citrate of iron, to counteract the excessive anæmia; ten minims of tincture of nux vomica, to act upon the affected muscles; and ten grains of iodide of potassium, for the elimination of the poison from the system. In both instances electricity had been daily applied to the affected muscles. The patient had so far recovered that he would be able to leave the hospital in about a fortnight's time.

Speaking of lead-poisoning generally, Dr. Garrod enumerated its most frequent causes, and explained that, in the case of artisans who work in lead, it is probably introduced into the system, not only by direct absorption, but by their taking their food with hands soiled with the particular form of the poison they are in the habit of handling. Among painters' colors, those containing little or no oil, and called "flatting" colors, are the most certain and rapid in their effect. And he reminded his class that some persons are much more readily affected than others, and that, should they find one member of a family suffering from anæmia, nervousness, and debility of the upper extremities, while all the others are in apparent health, they should not omit to look for the blue line on the gums, and to inquire carefully into the condition of their water-supply as well as every other possible means of lead-poisoning, under the impression that a common cause would necessarily affect the whole household alike.

Among other examples of the unsuspected and insidious manner in which lead may be introduced into the system, Dr. Garrod mentioned the following, which has an interest for the public as well as the profession. A gentleman, a resident in India, began to suffer some time since from nervous exhaustion, anæmia, and debility of both upper extremities; he was a great snuff-taker, taking, on an average, as much as an ounce in the course of a day. He consulted several medical men in India, and they attributed his symptoms to inordinate snuff-taking. He however continued to take snuff and to get worse, and at last came to England to seek further advice. When Dr. Garrod saw him he discovered a blue line on the gums. His suspicions were directed to the snuff, which he found to contain a considerable quantity of lead. To ascertain whether or not the presence of lead in this specimen was an accidental circumstance, six packets were ordered from the house in Calcutta with which the gentleman had been in the habit of dealing. The snuff was contained in sheet-lead packages, and were all found to contain lead to about the same extent as the first specimen. Dr. Garrod exhibited a solution which he had tested in the following way: Ten grains of snuff were burned in a platinum capsule, and the ash was treated with nitric acid; the crystallised result was dissolved in distilled water, with the addition of a small quantity of acetic acid, and then tested with iodide of potassium, which threw down an abundant precipitate of yellow iodide of lead. The leaden cases were labeled "best brown rappee," and bore the name of a well-known English firm, from which they had been exported to India. The snuff itself was rather moist, and, where it adhered to the sides of the case, was dotted with white spots, probably consisting of carbonate of lead, and, as Dr. Garrod suggested, formed by the fermentation of the damp snuff. He added that, since his attention had been directed to this subject, he had spoken to a medical man who had recently returned from Calcutta, who told him that he had quite lately met with three cases of lead-poisoning, which on investigation were found to be due to the use of snuff.

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ST. BARTHOLOMEW'S HOSPITAL.

A CASE OF MOLE CONCEPTION IN THE RIGHT OVARY; FISTULOUS COMMUNICATION WITH THE BLADDER, RECTUM, AND UMBILICUS; PERITONITIS; DEATH.

(Under the care of Dr. GREENHALGH.)

WE are favored with the notes of the following case by Mr. P. Butler Stoney, house-surgeon.

A. C——, aged twenty-eight, was admitted on June 13th, 1870. She was fairly nourished. The catamenia had appeared at the age of sevnteen, and had continued regular up to the time of her marriage.

Her first labour was completed without any difficulty whatever, and she continued to enjoy good health till her second labour, which was somewhat lingering, owing to the presence of a tumour in the passage, which prevented the exit of the head. This was dispersed by her medical attendant, and the child was shortly afterwards born. With the exception of occasional pain of a shooting and pricking character in the lower portion of the abdomen, and that her urine had become thick and of a strong ammoniacal odor, she had continued to be fairly well till three months ago. About that time she began to feel much worse, and consulted Mr. J. R. Milsone, of Chertsey, who has forwarded the following account of her case:—

"Some two years ago she was confined, and labour was delayed by a large semi-fluctuating tumour, filling the concavity of the sacrum. This tumour I tapped through the rectum, and emptied it of a cheesy-looking matter: the labour was then completed. I saw nothing more of her till some three or four months ago, when she sent for me. I then found her suffering from rather severe cystitis, passing considerable quantities of pus through the urethra, with some small phosphatic concretions; she was also suffering severely from strangury. The bladder was much contracted; indeed, it seemed to have scarcely any cavity, and she was unable to retain her water. There was considerable tenderness in the supra-pubic region, where a distinctly solid mass could be made out. At the same time I discovered a communication between the bladder and the umbilicus, water injected into the bladder passing out at the umbilicus; the urine also occasionally, and a constant discharge of pus passed through the same opening. Shortly afterwards she passed by the uretha considerable quantities of hair, some of it more than two inches in length. She is still suffering as much as when I first saw her, though I think she has improved in health. In her bladder are one or two concretions larger than any it has hitherto contained. The uterus seems healthy, and menstruation has been regularly performed till a few months since."

With the exception that the bladder was washed out twice a day, no definate treatment was adopted till October 13th, when Mr. Savory was called in consultation. It was then decided that the umbilical opening should be dilated till it admitted the finger.

On Oct. 27th some further dilation was effected under chloroform, and the opening was found to communicate with a cyst. After this examination the patient was returned to bed, and from that time continued to be sick, almost without intermission, until she died on the evening of the following day.

On opening the abdomen a cyst was found lying below the umbilicus, and communicating with it by means of a fistulous passage about one inch in length. On removing it with the parts attached, it was found to be situated in the right ovary. On its left side there was a fistulous opening into the rectum (probably the point where the cyst had been tapped during the second labour); on the right side it communicated with the bladder; and, posteriorly, there was found a hole, about the size of a sixpence, where it appeared that a perforating ulceration of the cyst-wall had occurred and led to fatal peritonitis. The cyst contained a quantity of light-brown hair, about two or three inches in length, with sebaceous and fatty matter, and also some bony deposit.

CASES UNDER THE CARE OF MR. PAGET.

Clinical Remarks on Residual Abscess.—On the 10th instant Mr. Paget operated on a girl who presented the novel feature of a residue of obsolete pus in a cavity in the lower end of the tibia. On her admission, rather more than a year ago, with acute necrosis of the tibia, a long incision was made in the line of the bone, and a quantity of pus liberated from between it and the periosteum. Later, an attempt was made to take away the necrosed portion of the bone, but it was found to be too firmly fixed. In August last, however, Mr. Callender, in Mr. Paget's absence, succeeded in removing a large portion of the middle and upper thirds of the shaft. The wound healed well, but there still remained at the lower end of the limb one or two small openings leading down to some more dead bone, with a view to remove which Mr. Paget performed the operation in question. His incision disclosed one or two small sequestra, and the large cavity in the lower end of the shaft of the tibia which contained them was filled with thick mortar-like substance consisting of half-dried obsolete pus.

In remarking on this case, Mr. Paget explained that such cavities in bone usually become filled with a soft and vascular fibrous structure; but that, as in the case of abscesses elsewhere, the contained pus may, on the other hand, remain behind, and dry up into the inspissated substance called "obsolete pus," leaving the patient liable to a return of acute inflamation of the part, resulting in what he calls "residual abscess." In the present instance, for example, had not the small remaining portions of necrosed bone led to the exploratory operation, the patient's limb would in all probability have healed with every outward sign of perfect health, but yet enclosing a substance which, perhaps soon, perhaps after a term of years, would, under the influence of a decline in general health or some other exciting cause, have lit up acute inflammation, and produced another abscess. As an illustration of this process, Mr. Paget referred to a patient whose case had already been mentioned elsewhere, but on whom a post-mortem examination has since been made. Twenty-four years before his death the patient was believed to have an abscess in the left iliac region, of which he was near dying. It was supposed by the two eminent medical men who attended him to have occurred in connexion with disease of the cæcum. He remained in fair health for twenty years, and then, two years before death, another abscess appeared below the crural arch and in the loin. It was opened successively in both these places. When the patient at length died exhausted by the profuse purulent discharge which it maintained, the evidence of the post-mortem examination went to show that the first abscess had been caused by disease of the lumbar vertebræ, and that the second had been a residual abscess, formed about the remnants of the old disease.

Ligature of the Femoral Artery.—In the following case, for the notes of which we are indebted to the house-surgeon, Mr. Young, the wound healed perfectly well over the carbolised ligature which was applied to the artery, and the subsequent superficial suppuration appears to have occurred in connexion with the inflammation of the saphena vein.

G. B——, aged sixty-seven, was admitted on Nov. 1st, with a large pulsating tumour, of six weeks' standing, in the right popliteal space. A distinct bruit was audible.

On Nov. 5th Mr. Paget tied the femoral artery in Scarpa's triangle with a carbolised catgut ligature, the ends of which were cut off short. After the wound had been well washed out with carbolic acid lotion (one part to twenty), it was closed with silver sutures, and covered with two layers of lint soaked in carbolic oil (one part to five). The patient was put to bed with the limb wrapped in cotton wool, and lightly bandaged, and a hot-water bottle to the feet.

Nov. 6th.—Pulse 72; temperature 98° F. Feet warm; no pain; has slept well.

7th.—Pulse 72; temperature 98·5°F. The outer dressing removed to soak the inner one with carbolic oil. It was then replaced, and the whole covered with gutta-percha tissue.

8th to 14th.—Temperature and pulse normal; has had slight tinglings in foot; aneurismal tumour is becoming small and consolidated. The patient is progressing favorably in every respect.

15th.—Enlarged and painful glands observed in inguinal region; the sutures removed; wound perfectly healed.

21st.—Pulse 94; temperature 101·8°; some pain and inflammatory thickening along the course of the saphena vein; superficial suppuration of wound; a linseed-meal poultice to be applied.

23rd.—Pulse 72; temperature 98°; tenderness in the course of the saphena diminishing, the thickening less; there remains some slight suppuration of the wound.

25th.—Pulse 72; temperature 98·8°; the wound is almost healed; water dressing applied.

Dec. 2nd.—Nitrate of silver applied to exuberant granulations of the wound; the patient allowed to get up.

12th.—The wound healed; the tumour small and hard, with no tenderness; a little thickening on the inner side of the wound; general health good.

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MIDDLESEX HOSPITAL.

CLINICAL REMARKS BY DR. MURCHISON.

A Case of Acute Rheumatism.—The patient was a lad who had been admitted three days previously with acute rheumatism and a cardiac murmur. Dr. Murchison pointed out that the signs which were chiefly to be depended on in determining the exocardial character of the murmur were—increase of the sound on pressure of the chest wall, its limited extent, and its superficial character. The frequency of the occurrence of cardiac complication in this disease could not, he believed, be influenced by any particular line of treatment; because, under any circumstances, it almost invariably supervened in the course of the first week of the affection, and in the great majority of cases was found to be already present at the time of admission. He had adopted the same treatment which his class, since the commencement of the winter session, had observed in two or three instances to be followed by favorable results—namely, the administration four times a day of five-minim doses of tincture of aconite. A reference to the chart showed that a decided fall of the temperature and pulse had ensued. A ten-minim dose of the solution of morphia had been given at night to ensure sleep.

The Estimation of Albumen during the use of Diuretics.—The quantity of albumen in the urine of a patient who had been admitted with mitral disease, albuminuria, and some consequent œdema, was reported to have undergone a marked diminution. Dr. Murchison directed attention to the fact that, in estimating the proportion of albumen, the quantity of urine passed by the patient must also be taken into consideration; and it was found on inquiry that in this instance the apparent decrease of albumen corresponded with a sudden rise in the daily excretion of urine from 16 to 130 ounces, due to the exhibition of ten-minim doses of tincture of digitalis three times a day. Dr. Murchison pointed out that, comparing the increase in the quantity of the urine with the decrease in the proportion of albumen, the actual quantity of the latter secreted in twenty-four hours remained about the same as before. He directed that the dose of digitalis should be reduced.

The Diagnosis of an Inflamed Knee-joint.—A patient had been admitted some time previously with swelling and pain of one knee-joint, with effusion. The symptoms had at first been attributed to rheumatism; but as, without any of the other joints becoming similarly affected, they remained undiminished for some time, blisters had been applied, and iodide of potassium had been given internally. These measures, combined with rest, had produced marked improvement; but on the patient beginning to use his leg the pain and swelling had returned, and, in spite of careful treatment, had not since undergone much abatement. Dr. Murchison said that, in the absence of any history of an injury, the affection must be attributed to a constitutional cause. There was no family history of tubercle, and no evidence of such a tendency in the patient himself; neither was there any evidence of his having contracted syphilis. But there remained one affection of which a history of the persistence of the inflammation for several weeks in one single joint, and that the knee-joint, was most suggestive—namely, gonorrhœal rheumatism. A careful inquiry, however, had not corroborated the view that the inflammation was due to gonorrhœal poison; and he therefore came to the conclusion that the case was one of simple synovitis. In any case he proposed to hand the patient over to his surgical colleague. Dr. Murchison added that so-called gonorrhœal rheumatism is not a rheumatic inflammation at all, but a distinct inflammation essentially due to the contraction of gonorrhœa.

The Diagnosis of a Case of Cardiac Disease with Pulmonary Complication.—The patient was fifty-three years of age. In his forty-first year he had had rheumatic fever, and ever since had suffered from shortness of breath and palpitation. In April last he had had a cough, which lasted five weeks; a month ago the cough had returned, and had not left him since. This history, Dr. Murchison said, was sufficiently characteristic to justify a strong suspicion that some permanent cardiac mischief had resulted from the attack of acute rheumatism, and that the lung affection was a secondary complication. It remained to verify this suspicion by means of physical examination. The heart's action was so feeble that the position of the apex could not be ascertained by the touch. The area of cardiac dulness being made out by percussion, the apex was assumed to be situated at the extreme left of its lower border. The transverse measurement of cardiac dulness was found to be three inches instead of two, as Dr. Murchison said it should be in a healthy man of average size. The evidence of cardiac enlargement was the more significant as the note elicited from the other parts of the chest indicated an emphysematous condition of the lungs. Attention being then directed to the heart sounds, he said that the points to be observed were—their frequency, strength, comparative length, and the presence or absence of any abnormal sound; they were found to be very feeble, especially the first, irregular, and irregularly intermittent, but no murmur was present. Though, in the majority of cases, Dr. Murchison said, valvular disease produced a murmur, the absence of a murmur did not necessarily contra-indicate the presence of such disease; especially did this apply to mitral constriction; and it was to be noted that hypertrophy and dilatation were also frequently associated with mitral disease. It was not improbable, he added, that if, after a period of rest and treatment, the heart's action became stronger, the valvular lesion might produce an audible effect. With regard to the lungs, the conditions to be chiefly noticed were —the character of the breathing, and whether any preternatural sound was superadded to it; the ratio of the duration of expiration and inspiration, and the vocal resonance. On auscultation, it was found to be loud and snoring, and the expiratory act was prolonged; no moist sounds, dulness on percussion, or tubular breathing were ascertained. These observations indicated the existence of bronchitis and emphysema. The presence of about one-twentieth of albumen in the urine, in the absence of any evidence of renal affection, contributed further proof that the patient had disease of one or more of the valves.

The Diagnosis of a Case presenting Acute Pyrexia, with Eruption on the Face.—Two days before admission this patient had experienced severe rigors, which were shortly followed by pain in the head, back, and left side; at the same time he became hot, and began to vomit. The pain and vomiting continued throughout the second day. On admission, about forty-eight hours after the onset of the symptoms there was an eruption on the face; the skin was found to be dry, with a temperature of 104°; the pain remained present in the situations indicated, and had become increased in the left side, and the patient continued to vomit. The points in favor of variola were said to be the vomiting and high temperature so early in the disease, and the pain in the back; against it were the increasing pain in the left side, and the facts that the temperature remained high, although the eruption on the face was well marked, and that this eruption itself was found on examination to present the distinctive characters of acne. It appeared, therefore, that there must be some local inflammation in the chest, and attention was directed to the base of the left lung, the site of the pain. On the day of admission neither dulness on percussion nor crepitation had been detected in this situation; but the breathing had been found to be less vesicular than at the opposite base, and accompanied by bronchitic râles. At the present time (the following day) the temperature was 103·8°; there was an acute herpetic eruption on the lips; there were two inches of dulness at the left base posteriorly, and in the left infra-axillary region and in the lower half of the left back friction-sound and distant tubular breathing were heard. The patient had a cough, and brought up rusty sputa. These conditions indicated plainly enough that the case was one of pneumo-pleuritis, though the general disturbance had been far in excess of the amount of local disease. There was a small quantity of albumen in the urine, and it remained to be proved whether the renal complication was a consequence of the chest inflammation, or whether the great constitutional disturbance, the chest inflammation, and the albuminuria, were not the consequences of the presence of a general poison in the blood. Dr. Murchison ordered a mustard and linseed poultice to the affected part of the chest, and ten minims of tincture of aconite three times a day, to be reduced to five as soon as an effect should be produced on the pulse.

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NATIONAL HOSPITAL FOR PARALYSIS AND EPILEPSY.

A CASE OF RIGHT HEMIPLEGIA WITH APHASIA, PROBABLY OF SYPHILITIC ORIGIN; GOOD RESULTS FROM TREATMENT; CURIOUS COINCIDENCE OF TRAUMATIC PALSY OF THE LEFT SIDE OF THE FACE.

(Under the care of Dr. BUZZARD.)

AT a late visit to this hospital we saw the patient whose case is here related. He considered himself to be quite recovered, and had resumed his work; but he still presented some slight evidences of his attack. We gathered the following history of his case.

A male, aged twenty-nine, single, applied at the hospital on August 17th, 1870, in the following condition. He walks very lame, dragging the right foot, and he can scarcely lift the right hand. There is no loss of sensation in the limbs. With Duchenne's dynamometer the result with the right hand is 0, and with the left 25°. His manner is very odd, the face having a dazed look, and he displays great irritability towards his companion, a young women to whom he is engaged. His speech is labored, and he is often at a difficulty for the right expression. Whilst the *right* limbs are paralysed, the *left* side of the face is chiefly, but not solely, affected. On being told to shut his eyes, the left upper eyelid fails to cover the globe by one-eighth. In laughing, the right angle of the mouth is drawn a little higher than the left. In whistling, the mouth is pushed over to the left. The tongue is protruded straight. He cannot eject saliva to any distance. There is no apparent loss of sensation on either side of the face.

On examination a scar is found half an inch in front of, and extending for an inch below, the external auditory meatus of the left ear, and a line of cicatrices runs down the front of the left sterno-mastoid muscle. He says that he had abscesses on this side of the face and neck two years ago; that one in the situation first mentioned was lanced, and that "the water used to run from the scar for two months." At this time he first noticed that he could not close his left eye, and the inability has continued ever since.

He contracted syphilis two years and a half ago, followed by bad sore-throat. His present attack (which had occurred three weeks previously) was preceded for a fortnight by great pain in the back of the head and over the left eye; and then one night, whilst in bed, he suddenly lost his speech, and the power of moving the right arm and leg, but he did not become unconscious. The speech was absolutely lost for three or four days, and then it gradually returned, but remained imperfect at the time of his application. He was in the habit, it seemed, of using words erroneously—as, e.g., calling his watch, "hat," He was admitted into the hospital, and ordered five grains of iodide of potassium three times a day. This dose was increased to ten grains after twelve days, then to fifteen grains after another week, and to twenty grains after another fortnight. During the first few days of his stay in hospital his manner was very flighty, and at times he was comatose for hours together; but these symptoms soon subsided, and he gradually improved also in the condition of his limbs.

He left the hospital on Oct. 15th, but continued taking twenty grains of the iodide of potassium three times a day.

When we saw him on Nov. 16th, he could use his arm freely, and the grasp of his right hand measured 30° on the dynamometer, as against 0 at his first examination—an average healthy grasp marking about 35°. There was slight lameness with the right leg, but so little remained of his paralysis that he was at work again as a groom. Asked about his speech, he acknowledged that he still occasionally, but rarely, substituted words, and that his tongue would sometimes catch against his teeth in speaking. The facial paralysis of the *left* side, which had existed for two years, remained unchanged.

Two points of special interest in this case were noticed by Dr. Buzzard: 1. The association of hemiplegia of the right side with facial paralysis of the left. 2. The rapid recovery under treatment addressed to a supposed syphilitic cause. As regards the first point, it was remarked that the first glance at this patient gave rise to the idea that the case might be one of cross or alternate paralysis, dependent probably upon lesion of the pons Varolii. But there was a feature which speedily threw doubt upon this view, and drew attention to the trunk of the left facial nerve. When the patient was asked to close his eyes, the left eyeball remained exposed to the extent of one-eighth of an inch, the right eye being perfectly closed. Now in that form of facial paralysis which is of cerebral origin, and which is constant to a greater or less extent in hemiplegia, the ability to close the eyes (at least simultaneously, if not always also independently) is never lost. This facial paralysis not being therefore of cerebral origin, inquiry and examination easily traced it to injury to the trunk of the nerve, as it passed through the parotid gland. It would seem that the injury took place to the body of the nerve before it divided, as the muscles about the mouth as well as the orbicular muscle of the eyelids were paralysed. Whether the damage had been done by suppuration or by the surgeon's knife did not appear, but at any rate the nerve had not been completely divided, as the paralysis was incomplete. In reference to the second point, Dr. Buzzard said that the age of the patient, the intense pain in the head preceding the attack of hemiplegia, and the previous history, led to the diagnosis of a syphilitic origin of the malady, the correctness of which the rapidly curative effects of the iodide of potassium had served to confirm. As regards the dose of this drug, Dr. Buzzard said he was in the habit of giving from five to twenty grains three times a day, in such cases as these; and in his experience instances in which such large doses could not be borne quite as well as small ones, were very rare. Indeed he was disposed to think that he more often observed marked iodism from small doses of the iodide, such as one or two grains, than when this drug was exhibited in the quantity above described. There were, no doubt, certain persons who were excessively susceptible, but these were quite exceptional, and he rarely met with cases in which great depression was produced by the drug. In the present instance it would be noted that the man had gone on taking large doses of the drug for three months, with a constant increase of health and strength.

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HOSPITAL FOR SICK CHILDREN.

LITHOTOMY IN GIRLS.

The following is the fourth instance in which the operation of lithotomy has been performed on the female subject at this hospital; it is gathered from the notes of Dr. Stephen, registrar to the hospital. The other three cases, of which we give below a short review, were under the care of Mr. Thomas Smith.

Case under the care of Mr. Marsh.—The patient was a girl three years of age, and on admission was found to be well nourished. She passed urine frequently, and complained of pain in so doing, and was observed frequently to rub the external genitals. On the introduction of a sound, a stone of apparently large size was detected; it could also be felt from the rectum. No deviation from perfect health had been observed in the child till a year previously; her micturition then began to become frequent and painful, and latterly these symptoms were much more marked, and she had contracted the habit of rubbing the private parts. During the last four months she had had prolapsus ani. Her urine was described as being thick, and at night was passed in bed.

The patient having been placed under chloroform, a staff was introduced by the urethra, and the vagina being dilated by means of a Sims' speculum, the posterior half of the urethra was divided with a small tenotomy knife. The stone was then seized with a pair of polypus forceps and brought into view, but it was found necessary to enlarge the opening slightly on either side before it could be extracted, although its smaller diameter was presented to the opening; it was found to be about an inch and a half long, and about half an inch in the transverse diameter. For a few hours after the operation the urine was bloody, and a few clots were passed; the pulse was 144°. Two days after the operation the patient was reported to have slept well each night, and to have taken her food with good appetite; her temperature was 98·6°; the urine, which she passed in bed, was quite clear.

Cases under the care of Mr. Thomas Smith.—The first was operated on in October, 1864. The patient was thin, pale, and haggard. For twelve months she had suffered pain during micturition; she passed water frequently; it was free from blood. For five months previously she had had prolapsus ani. In this case the stone was about two and a half inches in length. It could be plainly felt from the rectum, and appeared to completely fill the cavity of the bladder at the time of the operation; the perineum becoming very tense during the extraction, the vaginal orifice was slightly enlarged at the fourchette, and, as the posterior wall of the bladder was drawn forwards with the stone, a further incision was carried from the orifice of the urethra, about half an inch towards the os uteri. Two silver sutures were inserted, one through the perineal ncision, another through the vesical. The stone was extracted between them, and then they were tightened so as to close the incisions. A portion of the stone adhered to the fundus of the bladder, and was separated with some difficulty. No bad symptoms followed the operation. Eight days afterwards the patient could hold her water for more than half an hour. On the sixteenth day she could retain it for an hour, and the sutures were withdrawn. Three months later the child returned with a vesico-vaginal fistula, of which the edges were pared and brought together on two occasions, and in two months more she was discharged well.

The second case was operated on in April, 1865. The patient was five years old. For six months she had cried at every effort at micturition, and was in the habit of pressing her hand to the parts. Incisions were made in the urethra and in the fourchette. The stone was phosphatic, and weighed two drachms and a half, and was withdrawn without injury to the hymen. In a week's time the child had recovered complete control over the bladder, and, before another week, was discharged well.

The third case was admitted in May, 1869. The child was ten years old, and was well nourished. For two years she had complained of pain during micturition, and had been in the habit of pressing the hand to the perineum while voiding urine. The stream was sometimes full, sometimes a dribble, and sometimes stopped altogether for a time. The urine was sometimes offensive, always thick, but had never contained blood. The stone lay against the posterior wall of the bladder, and could be felt from the rectum. An incision was made in the fourchette, and another, against a grooved staff, through the anterior wall of the vagina, behind the urethra. Four sutures were passed into the vaginal, and three into the perineal, wound. The perineal sutures were removed on the tenth day, the vesico-vaginal sutures on the seventeenth; union was complete, and scarcely a trace of the incision remained.

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ST. GEORGE'S HOSPITAL.

CASES OF STRANGULATED INGUINAL HERNIA OCCURRING IN INFANCY.

For the following series of successful operations for strangulated inguinal hernia occurring in infancy, we are indebted to Mr. Warrington Hayward, the surgical registrar.

Case 1.—J. W——, aged nineteen months, was admitted on July 11th, 1870, under the care of Mr. Pollock. He had had a rupture since birth. Nothing had been done for it. It only came down occasionally. On July 9th it was observed to have become larger, and he was sick, but the bowels acted on the 10th. The sickness, however, continued, and he was brought to the hospital. On admission, there was a scrotal tumour on the right side, extending into the inguinal canal. It was without impulse, and apparently contained some fluid at the lower part of the sac. The child was vomiting frequently; the pulse quick and sharp. He was evidently in much pain. Chloroform was given; and Mr. Pollock cut down on the tumour, and opened the sac, which contained the testicle, some light-yellow fluid, and a portion of congested small intestine. He divided the stricture, and returned the bowel. The wound was closed by silk sutures, and a pad and bandage were applied. The bowels acted on the third day. There was a little suppuration from the wound; but the child seemed so well that his friends insisted on taking him home on the 21st. He was afterwards seen quite well.

Case 2.—T. R——, aged two years, was admitted on the 25th of June, 1870, under the care of Mr. Pick. His mother had not observed any inguinal swelling till June 23rd. He had whooping-cough, and after a fit of coughing he complained of pain in the belly. A warm bath was given, and the mother then noticed a swelling in the right groin. On June the 24th he was seen by a medical practitioner, who ordered a bath, and attempted to reduce the tumour. The size of the tumour was decreased, and he seemed in less pain; but vomiting occurred, and persisted during the night, so he was brought to the hospital next morning. On admission, a small tense tumour, without impulse, was found in the right inguinal canal; it was tender, and he had abdominal pain and sickness, with some fever. Chloroform was administered, and Mr. Pick cut down on the tumour and opened the sac of the hernia, which was found to contain the testicle and a small knuckle of congested small intestine. The stricture was divided, and the bowel returned. Five drops of laudanum were given. The bowels acted on the fourth day. He recovered without a single bad symptom, and was discharged on July 18th.

Case 3.—G. J——, aged one year, was admitted on Sept. 30th, under Mr. Pick. A right inguinal rupture was observed soon after birth. The mother obtained a truss, but the child had it applied only three months. Two months ago she found difficulty in returning the bowel, and it was done by taxis at the hospital. This morning it could not be returned; the child became frequently sick, and seemed in great pain. On admission there was an inguinal hernia on the right side. The tumour was not reducible, was tense, without impulse, and tender. The child was frequently sick. Ice was applied for a few hours; but the symptoms not abating, chloroform was given, and Mr. Pick cut down on the tumour and opened the sac, which contained the testicle and a congested portion of small intestine. He divided the stricture and returned the bowel. The wound was closed with silver sutures, and three minims of laudanum were given. There was little suppuration from the wound, which soon healed, and the child was discharged well on Oct. 18th.

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GUY'S HOSPITAL.

CLINICAL REMARKS ON A SUPPOSED CASE OF ACUTE TUBERCULOSIS.

(By Dr. Wilks.)

On the occasion of a recent visit to this hospital, we saw a young woman about twenty years of age, who had been admitted three weeks previously. Her sobs and her manner generally indicated that she was in a highly hysterical condition. Dr. Wilks said that ever since her admission her temperature had indicated a state of pyrexia, but that she had exhibited no symptoms either of local inflammation or a specific fever; and that whenever a high temperature was thus maintained for a considerable time, without the development of any other symptoms, it indicated the existence of acute tuberculosis. He had not been able to verify his opinion in this case by a physical examination of the patient, because she complained of such acute hyperæsthesia of the chest that percussion was impracticable, and directly he applied a stethoscope the breathing always became so rapid and shallow that no reliable observation could be made. But there were other signs which, in his opinion, lent confirmation to his diagnosis: there were, the patient's regular features, white regular teeth, and well-formed frame—all of them features of the tuberculous temperament; the falling off of the hair; and her hysteric condition. Ever since a striking incident had called his attention to the subject at the time that he was a clinical clerk, he had noticed the frequent coexistence of hysteria and phthisis. For three months the late Dr. Addison had, out of sheer disgust, passed by the bed of a girl who was in so highly hysterical a condition that he had found it impossible to make a careful examination of her state. One day a student, who had remained behind to listen to her chest, remarked to Dr. Addison that he supposed the case was one of phthisis, as he had heard sounds indicative of a large pulmonary cavity. Dr. Addison replied that there was nothing the matter with the patient but hysteria; but, on the student insisting that there was a cavity at the left apex, he listened for himself, and found that such, in fact, was the case.

Speaking of the relation of pyrexia to local disease, Dr. Wilks added that he did not believe that when a local disease followed in the wake of fever it held to it the relation of a consequence; for example, when people spoke of fever terminating in phthisis or some brain affection, it might almost always be taken for granted that the antecedent fever had been the pyrexia proper to tuberculosis in the one case, or meningitis in the other.

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ST. MARY'S HOSPITAL.

A CASE OF ASCITES SUCCESSFULLY TREATED BY OIL OF COPAIBA.

(Under the care of Dr. SIEVEKING.)

WILLIAM H——, aged forty-five, a coachman, was admitted on the 12th of August. He stated that nine weeks previously he had had an attack of diarrhœa, which was soon checked by medicine; but a week later he felt pain in the abdomen, especially over the region of the spleen, and shortly afterwards noticed that his abdomen began to enlarge. The pain and swelling gradually increased until admission. He was then in intense pain; the abdomen was greatly distended, shining, and dull on percussion; the superficial veins congested; the skin hot and dry; the tongue furred; the pulse 94; the urine scanty, never more than 15 oz. being passed a day, high-colored, but not albuminous. Mercurials, salines with iodide of potassium, iron, and an occasional opiate, together with the application of leeches, poultices, and blisters, were tried for a considerable time; and although the treatment relieved the pain, it did not diminish the effusion, which, on the contrary, seemed to increase, the abdomen measuring 39 in. round the umbilicus.

On the 12th of October the patient was much worse, the lungs becoming implicated, as indicated by pain, dyspnœa, cough, and dulness on percussion. He was ordered to take ten minims each of oil of copaiba and liquor potassæ, in an ounce of camphor mixture, three times a day.

14th.—Dyspnœa less, abdomen softer, and urine more abundant.

16th.—No dyspnœa. Measurement at umbilicus, 37 in. Amount of urine passed during the last twenty-four hours, 30 ounces. To take twenty, instead of ten, minims of oil of copaiba in each dose of the mixture.

18th.—Has been obliged to leave off the mixture, owing to its making him sick. Feels rather fuller in the abdomen.

20th.—Resumed the copaiba mixture.

21st.—Much better; measures round umbilicus, 35½ in. Amount of urine passed during the twenty-four hours, 50 oz.

25th.—Measures at umbilicus, 34 in. Urine passed yesterday, 32 ounces.

From that time he continued to improve, the thoracic symptoms disappearing, and the size of the abdomen decreasing.

On Nov. 3rd he measured 33 inches, and on the 11th, 32 inches, and was ordered to leave off the copaiba mixture, and to take an ounce of iron-and-quinine mixture twice a day.

On November the 18th he only suffered from weakness, and on the 24th he was discharged quite well.

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Provincial Hospital Reports.

LIVERPOOL LYING-IN HOSPITAL.

CASES UNDER THE CARE OF DR. STEELE.

FOR the notes of the following two cases we are indebted to Mr. R. A. H. Wood, the resident obstetric assistant:—

Vesico-vaginal Fistula of eight months' standing cured by Operation.—This case is an illustration of the treatment which Dr. Steele adopts for the cure of vesico-vaginal fistula. As will be seen, it is more simple than that which is laid down in surgical works. The details of the operation which he considers to be of primary importance are: the free paring of the edges of the fistula; the insertion of the sutures at such a distance from the margin of the wound as to obviate the danger of their cutting their way through the intervening tissue, and for this end also the avoidance of unnecessary force in securing the sutures; the careful removal of blood and small coagula; and the dilatation of the meatus urinarius to secure an undisturbed condition of the bladder for some hours after the operation. Dr. Steele thinks that, if these precautions are carefully observed, the use of clamps, of quill, button, or shot sutures, and the retention of a catheter in the bladder, may be dispensed with. He also finds it unnecessary either to adminster the full opiate generally recommended, or to keep the bowels inactive for ten or fifteen days; neither does he enforce strict diet nor prolonged confinement to bed.

A. B——, aged nineteen, married, was admitted on the 23rd of March. The patient, a healthy woman, rather tall and slender, but well-formed, had been delivered by a midwife of her first child about eight months previously. The labour was reported to have lasted nine hours, and not to have been unusually difficult or severe, but the child was still-born. Ever since she had been unable to hold her water, except partially, while in the recumbent posture. The constant dribbling had caused much excoriation of the nates.

An examination per vaginam disclosed a circular opening in the anterior wall of the vagina, two inches from the os externum, about the size of a threepenny piece, communicating with the bladder, and readily admitting the end of the little finger. The edges of the fistula and surrounding tissues were free from induration and thickening.

The operation was performed under chloroform on the 30th March, about ten days after the termination of the menstrual period. The patient was placed on the left side, and the parts were exposed by means of the duck-bill speculum. The operation of paring the edges of the fistula, which was freely performed with an angular-bladed knife, was, from time to time, suspended, in consequence of the somewhat abundant bleeding which ensued, although care was taken to avoid, as far as possible, the mucous membrane of the bladder. The wound was closed by means of seven sutures arranged transversely to the long axis of the vagina. Single silk ligatures were first inserted about half an inch from the margin of the incision, with a small needle curved to a semicircle, and held by a *porte aiguille*. Fine silver-wire sutures were then successively fastened to the end of each piece of silk, and drawn through, until the metal occupied the place of the silk; the wires were fastened by a single twist. Before the patient was removed from the table, the urethra was dilated by passing first the little finger and then the forefinger into the bladder. She was kept in bed for forty-eight hours; though no opiate or other medicine was given, she made no complaint of pain or distress, and slept well. She sat up on the third day, and could hold her water perfectly. The sutures were removed on the sixteenth day, when the patient left the hospital cured.

Ascites and Pelvic Hæmatocele simulating Ovarian Dropsy; Recovery.—Mrs. P——, aged twenty-three, married four weeks, was admitted June 30th, 1870, with enlargement of the abdomen, which was supposed to depend upon ovarian disease. The catamenia had commenced at the thirteenth year, and had always been regular, but during the last five years had been accompanied with considerable pain. Three months before admission she first noticed "a lump about the size of an egg" in the left iliac region, which had steadily increased, and since her marriage much more rapidly than before. She had suffered considerable pain in the situation of the swelling, especially of late.

She had a pale, anxious expression, and was rather emaciated; the muscles were soft and flabby; the pulse 120, weak; the tongue slightly coated; the bowels were regular; the appetite indifferent; micturition painful; the urine scanty and rather turbid. The abdomen was as large as at the full term of pregnancy; the distension being due to the presence of fluid. There was considerable bulging laterally, especially on the left side, and marked prominence above, from flatulent distension of the transverse colon. No anasarca.

On examination per vaginam and per rectum the uterus was found to be unaffected, but a fulness was perceived in the posterior cul-de-sac. Since the abdomen had become enlarged, she had suffered from slight cough and dyspnœa, especially while in the recumbent position.

Two years before admission she had had rheumatic fever, followed by a tendency to palpitation of the heart of short duration. No signs of cardiac disease could be detected.

She was ordered purgatives of compound jalap powder about every other day; a diuretic mixture, containing acetate of potash, tincture of digitalis, and spirit of juniper, every four hours; at bedtime occasionally a dose of chloral hydrate (20 grains), to procure sleep; and milk diet, with brandy.

On the 5th of July the first mixture was changed for one of bitartrate of potash, decoction of broom, and spirit of juniper; and an occasional draught of fetid spirit of ammonia and lavender was prescribed, to relieve distressing flatulence. Under this treatment her appetite improved, and the swelling of the abdomen decreased about two inches in circumference.

On the 20th the abdomen was ordered to be painted daily with the liquor iodi (B.P.), and a mixture of tincture of iron and quinine substituted for the other medicines.

From that time the enlargement of the abdomen diminished rapidly, and ultimately disappeared entirely, leaving nothing to be discovered, except a small, firm elastic swelling in the posterior vaginal cul-de-sac, which had gradually become better defined as the ascitic fluid became absorbed.

The patient considered herself "quite well," and left the hospital on the 15th of August. She presented herself again in about a month's time, and was found to be in precisely the same condition, in general health and every other respect, as when she left.

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ROYAL SURREY COUNTY HOSPITAL, GUILDFORD.

A CASE OF TRAUMATIC TETANUS TREATED BY CHLORAL HYDRATE.

(Under the care of Mr. EAGER.)

ALTHOUGH in this case the treatment was not ultimately successful, the chloral hydrate undoubtedly afforded the patient great comfort by procuring sleep, from which at one time he only awoke to attend to his natural wants; and, if the spasm which ensued on his being put to bed on the first day was a fair example of those which he had previously suffered, it certainly also for a time reduced the severity of the tetanic paroxysms.

The following notes are by Mr. Thomas Flower, house-surgeon.

James R——, aged twenty-three, a laborer, was admitted on August 1st. Twenty-four days before, whilst digging a pit, some earth fell on him, inflicting on his face a small wound, which was sewn up. He laid up for two days, and then attempted to resume work, but was unable to do much. The wound completely healed, and he improved until five days before admission, when he felt a slight stiffness and pain on both sides of the jaw, which had continued to become more severe.

On admission the jaws were firmly fixed; he had difficulty in swallowing liquids, and, occasionally, in breathing. After he was put to bed, he had well-marked risus sardonicus and opisthotonos; the pulse was 64, the skin cool and moist, and the saliva flowed out of the mouth. He was ordered sixty grains of chloral hydrate immediately, and thirty grains every three hours afterwards; milk and beef-tea *ad libitum;* and six ounces of brandy every twenty-four hours.

Aug. 2nd.—Had a fair night; looks more comfortable; swallows better.

3rd.—Has had a good night and is sleeping continually, only waking up to take nourishment, which he seems to enjoy; pulse 88; skin cool and moist; bowels open; passes urine; jaws not relaxed.

4th.—Not so good a night; takes his nourishment well; attacks of spasms more frequent; pulse quicker.

5th.—Has most severe spasms of all muscles of body; respiration greatly impeded, and chiefly abdominal; he becomes blue in the face when spasms are on; does not swallow fluids so well; pulse 100; passes urine.

6th.—Has continued to get much worse, and is not able to swallow anything. Enemata of beef-tea, brandy, and chloral hydrate were given, but without modifying the spasms, which occasionally threatened suffocation. He gradually became worse, and died at midnight. No post-mortem examination was made.

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BRADFORD INFIRMARY.

A CASE OF ARTERITIS.

(Under the care of Mr. H. Meade.)

The following appears to be an instance of very extensive arteritis. All the arteries which were examined bore traces of inflammation; and, from the feeble character of the pulsation in others, it seems probable that, had a complete examination been permitted, the inflammatory action would have been found to be still more widely diffused than was proved by actual inspection. Dr. Rabagliati, to whom we are indebted for this report, remarks that the microscopic examination of affected arteries bears out Rokitansky's statement that arteritis produces results quite distinct from atheroma —a distinction which is not mentioned in some textbooks of high standing.

Jane P——, aged eighteen, a servant, was admitted on the 5th of August, suffering from gangrene of the toes of the left foot. She complained of great pain in the whole of the left leg, more especially in the affected part. The pain was of a shooting character, and came on in paroxysms which lasted several hours. No pulsation could be detected, on the most careful examination, in the femoral or any of the arteries of the left lower limb. With great care, thin, thready pulsation could be made out in the right femoral. The skin over the left patella was dark. There was no pulsation in the right brachial or any of the arteries of the right upper limb; while in the left the pulsation could be traced, though it was less distinct than natural. No pulsation could be made out in either carotid. The patient was much emaciated, though there was not much wasting of any one limb as compared with the corresponding one of the opposite side. The heart's action was accelerated, but there was no murmur. The tongue was remarkably clean and moist, though the state of the bowels alternated between constipation and diarrhoea. In the further progress of the case, the gangrene of the toes, which was of a dry character, and accompanied by dark-red discoloration, continued to spread. The color then darkened into purple, and the toes shrivelled and dried up; the skin over the patella also became darker, and sloughed, exposing the bare bone, and by a similar process the tibia was laid bare in its whole course. The pulsation never returned in any of the pulseless arteries, and the patient sank exhausted on the 21st of October, the most prominent symptom before death being bilious vomiting.

When she was first seen by Mr. Meade in the beginning of July, the patient complained of dull, aching pains in the legs and thighs, which she thought were rheumatic, and attributed to having had to scrub and kneel on wet floors. At that time she had constant sickness. The pain in the limbs was paroxysmal, more severe in the left than right leg, There was slight discoloration of the skin over the left toes, and no pulsation was observable in any of the arteries above enumerated. As regards treatment, the patient was ordered to have the limbs wrapped in cotton wool, and to take stimulants, a nourishing diet, and opiates according to circumstances.

Permission could be obtained to make only a limited post-mortem examination. The heart, and the aorta as far as the left femoral artery in Hunter's canal, were examined, with the corresponding veins, as were also the right brachial artery and vein. The heart was small, but normal; all the valves competent. There was no trace of inflammation externally, but the serous membrane lining the left ventricle was slightly injected, and the ventricle was filled with a firm fibrinous clot, presenting points reddened apparently by vascularity; under the microscope sections of bloodvessels were found in them. The clot consisted mainly of fibrous tissue with numerous nuclei. The inner coat of the aorta was injected throughout, and at frequent intervals showed patches of a deeper red. These last seemed to penetrate in one or two places almost the whole thickness of the vessel, so as nearly to cause perforation. A layer of fibrin was deposited like an inner lining membrane along the whole surface of the vessel, and could be peeled off in a continuous layer. On doing so, the vessel could be felt rough at the points where the injection was most marked. The deposit was not in such quantity as seriously to diminish the calibre of the artery. The injected appearance could be followed up into the serous lining of the left ventricle, where, however, it became much fainter in color. At its bifurcation the aorta was filled with a light-yellow lymphous deposit, which seemed to be breaking down. The clot extended into the common iliac, and reduced it so that at the bifurcation of the aorta it was not larger than a goosequill. The whole aorta was much puckered internally. The left external iliac felt like a cord about the size of a goosequill, and was quite filled with a red, firm, organised clot, which seemed quite to occlude the vessel. On separating the clot, the inner coat was seen much injected, of a crimson color, and with well-marked transverse striæ along its course. These, under the microscope, were seen to consist of white and yellow elastic tissue (both quite characteristic), with plain muscular fibres and numerous nuclei. There was no atheromatous deposit. The femoral artery was about the size of a crowquill, more pervious than the external iliac, and contained a clot of a light-yellow color and friable—more like that discovered at the bifurcation of the aorta. The inner coat was also much injected, and the transverse striation well marked. The clot here was, in appearance, not unlike an earthworm, from bearing the impression in reverse of the transverse striation of the inner coat. In Hunter's canal the vessel increased in calibre; in this situation also the vein was shrunk and injected, but higher up it presented a more healthy appearance. The right brachial artery was like a cord, quite shrunk, barely pervious. The vein was normal. In the bronchial glands there was a calcareous deposit of the size of a walnut.

Medical Societies.

FEBRUARY—MARCH.

PATHOLOGICAL SOCIETY OF LONDON.

Dr. Quain, President, in the Chair.

Dr. Douglas Powell showed several specimens illustrating the pathology of Fatal Hæmoptysis, and especially the fact that, contrary to received opinion, the arteries in the walls of cavities are not generally obliterated. The first specimen was a lung from a man twenty-six years of age, who died three days after an attack of copious hæmorrhage, the first the patient had ever had. The lungs were tubercular, the seat of lobular pneumonia, and the chief cavity contained a ruptured aneurism of the size of a small walnut, whence the blood had escaped. A second specimen was taken from the body of a man, aged thirty-one, who died of hæmorrhage three days after admission to hospital. There were cavities in both lungs; one, an old one, contained a sacculated aneurism with thin walls, and the size of a pea, which had ruptured by a triangular slit. The third specimen was furnished from a man who died suddenly from a third attack of free hæmorrhage. In this instance a rapid ulceration had exposed the vessels, one of which was eroded and opened. A fourth specimen was from the body of a man, aged thirty-six, and in it the vessels in the wall of a cavity were exposed by extensive ulceration. Dr. Powell had detected small sacculated aneurisms in other cases, and hæmorrhage from aneurismal dilatations, or erosion of vessels, was most likely to occur, he thought, in cases of one-sided phthisis, with an old cavity where ulceration was going on.

Dr. Bastian said that conditions existed in many cases of phthisis most favorable for the production of aneurism, especially in instances of fibrous disease, and it was easy to understand the frequency of these aneurisms; indeed, it was rather surprising that they were not more usually found.

Dr. Moxon asked if Dr. Powell had failed to discover these aneurisms when they had been very carefully searched after, for he had, in two cases, after the minutest examination, failed to detect anything like them. He was surprised to learn what was the class of cases in which Dr. Powell found aneurisms—viz., one-sided and old phthisis in which the arteries were generally obliterated. He should have expected hæmorrhage to have occurred in cases where there was healthy tissue bounding closely the cavities.

Dr. Powell said he was dealing with the state of vessels in fatal cases of hæmorrhage and old phthisis. He admitted that there were cases in which the source of the hæmorrhage could not be detected.

Dr. Whipham exhibited a Diseased State of the Tricuspid Valves, which existed as the sole disease about the heart. The patient from whom the specimen was taken was admitted into hospital with pneumonia secondary to hæmoptysis, and died quickly. At the post-mortem the tricuspid valves were extensively ulcerated, many of the chordæ tendineæ having given way. These appeared to be the cause of the disease. All the other parts of the heart were healthy.

Dr. Kelly exhibited a Malformed Heart from a cyanotic child aged three months. The aorta came from the right, and the pulmonary artery from the left, ventricle. The little child had a convulsive attack every morning for some days previous to its death. The ductus arteriosus was closed, and the foramen ovale was very small.

Dr. Kelly exhibited a second Malformed Heart, in which during life a loud bruit was heard, and after death the septum between the ventricles was found almost wanting.

DR. LIEBREICH'S OPHTHALMOSCOPIC DEMONSTRATIONS.

Dr. Liebreich gave a number of ophthalmoscopic demonstrations of diseases of the eye. He said:—I present to you an exceedingly interesting case of a congenital anomaly which is very rare. It is a persistent hyaloid artery and vein. I have never seen so fine a specimen. Arising from the artery of the optic disc is a little branch, which runs in nearly a straight line into the vitreous humor. It soon terminates in a loop, which seems to make a direct transit from the artery to the vein; and the latter returns to the papilla by intertwining itself obliquely with the artery three times. It terminates in the central vein in a point which it is not easy to observe, because it is situated in the fundus of the physiological excavation of the optic disc. In order to enable you to recognise the direction of these little vessels, it suffices to make a slight lateral movement of the objective of the instrument, or of the eye under observation. During this experiment, you will see the vessels of the vitreous humor making an apparent movement in displacing themselves before the optic disc, and more strongly with the anterior end. This observation of parallax is very easy in this case on account of the relatively great distance between the anterior and posterior end; but I have recommended this same movement as an excellent means of diagnosing the slightest difference of depth. The change most frequently observed with the ophthalmoscope is the posterior staphyloma occasioning short-sightedness, by the lengthening of the antero-posterior axis; it is characterised ophthalmoscopically by choroidal atrophy about the posterior pole of the eye-ball, and at the circumference of the optic disc. You will observe at the margin of the nerve a white crescent, within the limits of which the sclerotic appears quite denuded, which is due to the complete atrophy of the choroid at this point. In the patient with choroiditis disseminata you will be able to make almost microscopical observation on the state of the cells of the choroid. In some these cells are atrophied, and small more or less light spots are visible. The darker patches, on the contrary, are formed by the altered epithelial cells of the choroid. As the latter become darker, each cell is isolated like a little black point. It is important not to confound this disease with retinitis pigmentosa. The black spots in the latter are found in the retina itself, and you recognise them by the manner in which some of these black lines accompany the vessels of the retina where they cross the pigmentary zone which surrounds the optic nerve. This affection, which I found, almost ten years ago, to be, in nearly half of the cases, the result of marriages of consanguinity, is generally developed in early childhood. The greater part of the affections of the retina and of the optic nerve are, on account of their relation to the different affections of the heart, kidneys, brain, and spinal cord, of great interest to all physicians who do not confine themselves specially to ophthalmology. It was difficult to find cases in illustration, but Dr. Jackson has sent me a very fine case of neuritis optica. You will see the optic disc completely changed. Its color has disappeared, the substance of the papilla has become opaque and so thickened that it forms a prominence, the surface of which is indicated by the course of the veins, which, on account of the impediment to the circulation, are become swollen and tortuous, while the arteries are so thin that one has a difficulty in finding them. You will be struck by the great difference in the aspect of the optic disc between this case and cases of atrophy of the nerve and of glaucomatous excavation of the papilla, of which we have a fine specimen for examination.

Mr. Henry Arnott showed specimens of Secondary Epithelial Cancer in the Lungs, the Heart, and the Breast. One case commenced as epithelioma of the clitoris, the inguinal glands then becoming involved, and presently the lungs and the breast. In another the disease began in the face, and involved the lungs secondarily; and, in a third, the face was first involved, and the sternal region secondarily.

Mr. Heath showed a specimen of Procidentia Uteri with an enlarged Ovarian Cyst, from a woman aged thirty-nine. The procidentia dated nineteen years back, and its extent may be judged from the fact that the sound passed to the extent of five inches and a half. With difficulty the uterus was returned, and the usual operation was performed. Perfect union took place, but the urine became purulent, and the woman sank and died. Both kidneys were diseased.

CLINICAL SOCIETY OF LONDON.

Mr. Paget, President, in the Chair.

Mr. Durham related a remarkable case of Spontaneous Fracture of the Femur. When first seen by him in March, 1867, the patient, a professional man, aged forty-four, was seated, half-dressed, in an easy chair. He thought himself capable of walking about, and was surprised to find this impossible. The right femur was found broken at the junction of the upper and middle thirds, the limb being shortened by three inches. Three months previously the patient had fallen downstairs and hurt his thigh; but he soon felt nothing of the injury, which he thought a trifling one. Seven weeks later, however, he began to have aching pain in the thigh, which was considered and treated as neuralgic; and when this had lasted three weeks, he felt, on going to bed one night, a sudden increase in the pain, and fell on to his bed in great agony. Next morning he could not move his thigh, which was much swollen. He was quite unconscious of having subjected the limb to any sudden strain. After a few days the swelling and pain diminished, and he got up, but could not walk about; and it was about ten days after that Mr. Durham, visiting him for the first time, in consultation, found his thigh broken. Under treatment the bone united; in the course of four months the patient could move about; two months later he returned to professional work. He remains quite well. Mr. Durham thought it probable that at the time of the fall some injury of the bone had taken place, which had been followed by gradual interstitial degeneration and absortion of bony tissue, instead of healthy repair, leading to spontaneous fracture of the bone. The patient had, it seemed, been subjected to great worry and wear and tear of brain, and Mr. Durham suggested, as a topic for discussion, the relation which may exist between overwork or excitement of brain and defective nutrition of bone.

Mr. Christopher Heath quoted a case that had come under his own observation, asked Mr. Durham why iodide of potassium was given, and hinted that phosphates would probably have been more useful.

Mr. Durham, in reply, said that there was, in his case, no evidence as to syphilis, and that iron and iodide of potassium were given because physicians thought these medicines proper. He remarked upon the fact that in lunatic asylums fractures of this kind frequently occurred, and that in all such cases there existed mollities ossium, or waste of brain-tissue, with impaired nutrition of the bones.

Dr. Wiltshire narrated five cases which he thought presented the characteristic symptoms of Paroxysmal Hæmaturia—namely, rigors, yellow discoloration of the skin, and dark urine, the latter containing the red coloring matter of the blood, albumen, oxalates, lithates, &c. Observation had led him to regard the yellowish discoloration of the skin as the most constant and important symptom, and he advanced the hypothesis that it was due (like the dark urine) to disintegration of the red corpuscles of the blood, the disintegrating agent being a volatile organic acid, probably a fatty acid, which was thrown back into the system by chilling of the skin in persons predisposed to the affection, He supported this view by a reference to the effect of venoms on the blood, and especially when the virulence of these poisons was intensified by the addition of volatile organic acid. He also cited the discolorations of the skin which are seen in pyæmia, Addison's disease, chlorosis, certain forms of so-called jaundice, as icterus neonatorum, sudden suppression of normal discharges, as sweat, menses, &c., and referred to the greenish hue of unhealthy women at the catamenial period, as evidence that chromatic changes might occur in the skin as the result of auto-genetic poisoning. He argued that the elimination of the coloring matter of the blood by the kidney was not an essential symptom, and adduced evidence in support of this view. He thought that, clinically, the scope of the disease should be widened, the pathological process comprehending, he believed, a considerable number of affections not hitherto classed with it. Believing the disease to consist essentially of a process of diffused hæmatolysis, and arguing that, as a consequence, the names hitherto employed—namely, intermittent or paroxysmal hæmaturia, hæmatinuria, and cruenturia—only expressed a symptom, and that neither a constant or necessary one, Dr. Wiltshire, although averse to the invention of new names, proposed "paroxysmal hæmatolysis" as a more fitting and expressive one.

Dr. Glover denounced the loose construction of the paper. He was not at all sure that the appearances in the urine might not have been owing to bile-pigment, or lithiacal deposits.

Dr. Dickinson made some brief observations as to the connexion of the disease with ague and with the pathology of the spleen, and said that the malady could usually be cured by quinine.

Sir Henry Thompson exhibited a patient on whom an operation had been successfully performed for the loss of a large portion of the urethra. The man had been the subject of large extravasation of urine, distending the scrotum and rising above the pubes, whence it was evacuated by free incisions. The resulting sloughing destroyed the skin of the penis and a full inch of the urethra just anterior to the scrotum. When the neighboring parts were sound, Sir Henry, having introduced a grooved staff into the bladder, opened the urethra in the perineum, and passed a gum elastic catheter through the wound into the bladder, and retained it permanently. He then broadly pared the margin of the wound, dissected a large flap from the side of the scrotum, and placed it in good apposition upon the raw surfaces, attaching it with silk sutures, and covering in completely the urethral wound. All the urine now flowed by catheter into a vessel, and in a few days firm union had taken place except at one small spot. The catheter was changed in a fortnight, and the second one was retained for five weeks. On removing this the perineal wound speedily closed, and a No 8 catheter could be passed through the entire urethra into the bladder. The patient had since learned to do this for himself. There now remained only a very small orifice, which could be readily closed by galvanic wire, or by some small plastic operation. Sir Henry dwelt upon the importance of a constant free evacuation of the urine in these cases, so as to bring about a state of quietude to the diseased passages; and for this purpose he was in the habit of insisting upon the patient acquiring for himself the habit of drawing off his water by catheter. The great bar to success, he thought, had almost invariably been the presence of urine percolating, at every act of micturition, between the fresh surfaces newly adjusted by the surgeon. The procedure adopted in the present case had been adopted on two occasions in France, by Ségalas and Ricord.

Mr. Christopher Heath commenced the discussion by observing that the chief point of the operation was the great breadth of surface laid bare, and this was doubtless a great element of success, for another good urethra had been formed simply of skin tissue, so that some sort of mucous tissue must have been formed.

Mr. Henry Lee said that it was worthy of observation that skin is convertible into mucous tissue, and *vice versa*, so that the one forms in some way a substitute for the other.

Mr. Heath remarked that in that case the deep surface of the skin was exposed.

Mr. Lee said that a certain amount of contraction always takes place at the edges of the skin, that being also the case in all cicatrices.

Sir H. Thompson, in replying, subscribed to the pertinent remarks of Mr. Heath, and believed that the surface exposed was probably an inch, that a large adaptation of surface was the best means of securing success, and that the raw surface should come close to the roof of the canal, so that pouches may not be left, and cause breakings-out afterwards.

A paper by Dr. Hanfield Jones, entitled "A Query as to the safety of Subcutaneous Injections," was read by the Secretary. Three cases were described in which the injection of small doses of morphia or opium (1–5 gr. of morphia in the first case, 5 minims of liquor opii in the second, and 5–24 gr. of morphia in the third) had been followed by more or less serious fainting. Reference was made to published cases of serious symptoms following subcutaneous injections of morphia. He suggested the subject as one upon which the Clinical Society might usefully bring their experience to bear, especially with the view of discovering whether there were any objective signs of the state in which opium was not tolerated, and whether such a state might exist at one time and not at another. He thought it very desirable to ascertain whether morbid changes in the valves or muscular tissue of the heart increased the liability to the occurrence of syncope, or whether this was chiefly dependent, as chloroform-syncope seems to be, on some latent infirmity of the cardiac nervous centres.

Dr. Southey cited an instance in which death had followed the injection of a sixth of a grain of morphia, and made some remarks, the pith of which was that such injections were dangerous in cases of advanced heart disease.

Dr. Charles Hunter, speaking from an experience of about 2000 cases annually, saw no risk in the system of hypodermic injection, whether there was evidence of heart disease or not. Care should be used at the first injection, and the state of the kidneys should be looked to. It was possible that tetanus might result from puncturing a nerve, but he had never seen it.

Mr. Lee remarked that the quantity injected in Dr. Jones's cases appeared to be very large, and of course any solution injected into the veins would act more powerfully than when injected into the cellular tissue. A safe plan was to withdraw the needle (after its introduction) about one-eighth of an inch.

Mr. Carter said that the late Professor von Graefe, who was accustomed to use these injections, took instantaneous action as the test of the solution entering the veins, and in such cases was accustomed to withdraw the piston before removing the needle.

Dr. Duckworth quoted a fatal case, and

Mr. Barwell made some remarks indicating that the results of hypodermic injection should not be judged by Dr. Jones's cases, inasmuch as there appeared to be in one or more of them some heart complication.

Dr. Buzzard, from an extended experience of the system, thought that some importance should be attached to the pain of the operation, and that Glover's steel needle was perhaps the best kind of instrument. He related the case of a lady who had come indirectly under his care, who stated that she had frequently received 32 gr. of morphia in twenty-four hours by subcutaneous injection. He injected in this case 5 gr. and afterwards 15 gr., which produced only slight contraction of the pupils.

Dr. Hunter indicated that any risk as to the introduction of air into the vein can always be obviated by filling the syringe with more of the solution than is actually required, and that the pain of the injection can be much modified by admixture of the solution with glycerine.

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OBSTETRICAL SOCIETY OF LONDON.

Dr. Tilt, Vice-President, in the Chair.

Dr. Hall Davis reported a case of Extra-uterine Gestation of the left ovarian variety, occurring in the third pregnancy of a married woman, thirty-nine years of age. When first seen the physical signs induced him (Dr. Davis) to suppose that it was a case of retroverted uterus containing a fœtus, and attempts at reduction were made. On the same evening violent vomiting took place, and the swelling in the posterior part of the pelvis was found to have disappeared, and in its place was what seemed to be an empty sac. On abdominal examination, the head of the child was felt in the right lumbar region, apparently immediately under the abdominal wall, and below it another but smaller prominence. It was not movable, and there was no constitutional disturbance. Dr. Davis was firmly of opinion that the child had escaped by rupture into the abdominal cavity, and during vomiting. It appearing to him that abdominal section and removal of the child was indicated, he proposed a consultation, the result of which was that his diagnosis was not supported; and, therefore, the operation was not performed. The patient died on the 28th of October, the sixth day after rupture. The autopsy confirmed the diagnosis of the escape of the child into the abdominal cavity, and proved that the pregnancy had been an extra-uterine, and not a uterine gestation. Dr. Davis considered that the only chance of saving the patient, although it might be a remote one, would have been abdominal section and removal of the child, as also of the cyst with its placenta, and the effused blood.

Dr. Wiltshire asked if the uterine sound had been used, as it fairly might have been in such a serious case. He mentioned a case of supposed extra-uterine fœtation which was under his own observation. He regretted that gastrotomy had not been resorted to in this case, for, as far as he was able to judge, no insurmountable difficulties would have been met with, and the patient would have been afforded a chance of recovery, which otherwise she had not.

Mr. J. B. Walker exhibited a Placenta that had been retained in utero for two months, without hæmorrhage, or fetid discharge.

Dr. Murray, who had seen the case with Mr. Walker, said that at first he had been able to introduce the finger into the uterine cavity, but that no part of the placenta had been felt. The umbilical cord had come away without traction, almost immediately after the finger had been introduced. The patient having lost no blood whatever, and feeling perfectly well, Dr. Murray agreed with Mr. Walker that it would be better to watch the case closely, and wait upon the least occurrence of bleeding, rather than to dilate the os uteri, and again seek for the placenta. Dr. Murray, feeling sure the placenta must have been firmly and completely adherent, considered, under the circumstances, that the removal would in all probability have resulted in leaving portions of the mass behind, which would have caused frequent hæmorrhage, and perhaps septicæmia.

Dr. Martin read a paper "On the Management of Childbirth, with a view to promote successful Suckling." The author commenced by describing the causes which often interfered with efficient suckling, and described at length his views on the etiology of milk fever. He then enumerated the best means of treating puerperal patients with regard to this point, and insisted especially that the usual practice of putting the child to the breast immediately after delivery was a bad one. He maintained that no attempt to suckle the child should be made until the secretion of milk had been thoroughly established.

Dr. Thos. Ballard said that ten years ago he had invited attention to the importance of not allowing the child to be put to the breast until the third day after delivery; and had endeavored to prove that the feverishness which the author indicated, and the more severe forms of milk fever, are mainly caused by the practice which he regretted was still generally taught, that of putting the child to the breast a few hours after birth. The reason for doing so are not valid. The principal one, that of producing uterine contraction, and thus arresting hæmorrhage, does not often apply, because the accoucheur would usually satisfy himself on this point before he left the patient; and consequently before the nurse had prepared the child to go to the mother. That of the child getting colostrum to purge away the meconium is a misconception. No milk is secreted for sixty hours, and the irritation of the child's bowels, caused by early sucking, is the result of its sucking at a breast which yields nothing (fruitless sucking), and not of its swallowing a fluid possessing a cathartic property. He (Dr. Ballard) hoped that this mythic theory about colostrum would soon disappear.

Mr. Coward, of Christchurch, New Zealand, read a paper on a case of Inversion of the Uterus. This occurred in a primipara, twenty-two years of age. The labour was normal, and the inversion took place suddenly when only gentle traction was being made on the cord. The inversion was at once reduced, the placenta, which was still attached, having been first removed. The patient made a good recovery. In the latter part of his paper, Mr. Coward especially insisted that traction on the cord was not the usual cause of this accident.

Dr. Madge also read a paper on a case of Inversion of the Uterus. This happened in a primipara, whose labour was quite natural. After delivery the nurse was making firm pressure on the uterus, when inversion suddenly took place. Dr. Madge first peeled off the placenta, and then reduced the uterus without much difficulty. The patient made an excellent recovery.

Dr. Braxton Hicks said that in the cases of inversion he had seen there had been no traction by the medical man on the cord. In one case the patient had not been touched, as the placenta had been expelled spontaneously before the attendants arrived; and in another it occurred immediately on the delivery of the child by the forceps, in a case of inertia of the uterus. He thought that a short funis in many cases would be sufficient to commence the action, if the fundus were flaccid. In answer to Dr. Madge's objection, he (Dr. Hicks) considered that the marginal attachment, coupled with the atmospheric pressure, would be amply sufficient to cause a cupping of the fundus, and thus commence the process.

Dr. Hall Davis believed that we must admit two classes of cases of inversion of the uterus occurring in connexion with labour. Firstly, those resulting from traction on the umbilical cord, however applied, the placenta being as yet attached to the fundus of a relaxed uterus; or, during the completion of the second stage of labour, the advancing child dragging on a short cord, as explained by Dr. Hicks; or, again, during the sudden birth of the child the parturient being in the erect position. Secondly, those cases in which the displacement was the effect of an inverted action of the muscular fibres of the uterus, quite independent, and often in the absence, of the attendant. The latter class of cases he held to be the most frequent. Such, at least, was his experience.

A paper was read by Dr. George Mendenhall, Professor of Obstetrics in the Miami Medical College, Cincinnati, "On the Mortality of the Lying-in ward of the Cincinnati Hospital." This paper gave an interesting account of an outbreak of puerperal fever, the source of which was traced to defective ventilating arrangements, by which a current of air from a surgical ward was led into the lying-in ward. As soon as this was remedied the mortality ceased.

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MEDICAL SOCIETY OF LONDON.

Mr. Gay, President, in the Chair.

The President showed specimens of Elastic Tissue, Oil-Silk, and Gutta-percha prepared by a patent process, so as to be unaffected by heat or moisture; hence they could be cleansed, and used more than once for dressings.

Dr. Althaus showed a patient of about ten years of age, who had lost sensation and power of motion in the right arm, without atrophy, probably from rheumatic inflammation of the brachial plexus. The ordinary treatments for rheumatism failed. The continuous current rapidly cured the case. Dr. Althaus, in a very lucid manner, discussed the question of pathology, and then explained a very convenient form of apparatus for applying the continuous current, made by Weiss, and consisting of a platinum-zinc battery of fifty cells, in a box. When closed, the cells containing the acid sank below the plates; when the box was widely opened, the vulcanite cells of acid were raised and brought into contact with the plates, and thus the battery was set to work.

Mr. Teevan showed a Calculus, removed by incision from the ischio-rectal fossa of a man aged forty, who had been cut for stone when five years old. Recently the urine had escaped from the old cicatrix, and a hard body was felt, which turned out to be the stone in question. It had facets, and had probably been in contact with other calculi in the bladder.

A paper on the Analysis of Cholera Nostras and Cholera Indica was read by Dr. Macpherson. After pointing out the diseases with which it has been confounded, it was shown by a historical sketch that cholera nostras had often been epidemic in Europe, and some of the opinions respecting it were mentioned. It was shown that the symptoms during life of the two diseases resemble each other closely; that, as yet, no difference has been shown in the post-mortem appearances; that the indications for treatment have been the same in both; that the two affections have been ascribed to the same predisposing and exciting causes; that they have the same character of seasonal prevalence; that they are both influenced by locality; that they both exercise a distinct action on other diseases; that contagiousness has been attributed to both; that neither gives immunity from future attacks; that a relapse or a reproduction of the disease may occur in either from an imprudence; that both have been compared to acrid poisoning; that the existence of a poison has been suspected in both; that, supposing the poison in cholera indica to have been discovered, there might remain one to be discovered for cholera nostras; that for the present their leading differences are of degree, cholera indica having increased intensity of symptoms and increased power of spreading. A few points of analogy with other diseases were also pointed out.

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HUNTERIAN SOCIETY.

Mr. Hovell read a paper on Hysteria. The term hysteria has been loosely applied to a large class of disorders under the idea that they proceeded from uterine irritation. Mr. Hovell considers that the general sympathy of the nervous system with the uterus and ovaries acts merely as a predisposing circumstance; that the susceptible condition which forms the base, as it were, of the disease, is the effect of influences which more or less depress and exhaust moral power, and involve also a loss of physical power. Many of these are comprehended in moral shock and physical shock. The susceptible condition which constitutes the passive stage is very easily converted by irritating causes into the active stage, and these irritating causes are not only physical but moral, and the most frequent of these is worry. Thus we have to deal with a passive stage and an active stage, and with causes of irritation that are both moral and physical. Uterine irritation may be one of the last, but it is not an essential one. The treatment applicable to the various symptoms which arise from these complications is obviously to remove all causes of irritation of whatever kind, and to raise both physical and moral power. The case becomes obstinate in proportion as this simple plan of treatment is omitted or neglected. It is also urged that the hysteric hypothesis stands in the way, by presupposing a cause that does not exist, and by referring treatment to a wrong basis. More than this, it prevents inquiry into the real cause of the disease, and the recognition of a class of circumstances which has a very important bearing upon the practice of medicine. It therefore becomes imperative to dismiss an untenable hypothesis, and to investigate this disease from a different point of view. It is proposed to adopt, instead of hysteria, the generic term neurosis, the particular form and feature of which will be determined by the circumstances of the case. The objectionable features of the disease will then be removed, and a better diagnosis will lead to more successful treatment.

Editorial.

THE HYPODERMIC INJECTION OF CALOMEL IN SYPHILIS.

The last parts of the *Journal de Medécine* contain a translation by Dr. Oscar Max-Van Mons of the Memoir of M. Scarenzio, of Pavia, and M. Ricordi, of Milan, to which the gold medal was adjudged at the Medical and Natural Science Congress held in Brussels in 1868. In this Memoir a hundred and four cases of various forms of syphilitic disease, occurring in both sexes, at all ages, and pursuing diverse occupations, are recorded, in which the treatment by the hypodermic injection of calomel was adopted with marked success. Thus, out of eighty-five cases of primary disease there were seventy-nine complete recoveries, three partial, and three deaths, of which two had no relation to the plan of treatment pursued. In opposition to M. Lewin, MM. Scarenzio and Ricordi employ calomel suspended in gum or glycerine and water, instead of corrosive sublimate. The quantity injected varied from about three to fourteen grains. Slight salivation occurred in two instances only. The suspended calomel was injected by means of a Pravaz's syringe in the ordinary method; and, although any part of the body may be selected, they prefer the outer part of the leg or forearm, or the side of the chest. The operation produces but little pain. A minute fluctuating tumour is left, from which in a few hours the watery parts are absorbed. Eight or ten days afterwards a local reaction occurs, terminating—and this is the chief objection that can be urged against this mode of treatment—in an abscess, which usually contains from a drachm and a half to two drachms of matter. It is advisable to delay the opening of the abscess in order to allow absorption to take place as completely as possible. Erysipelas of the arm occasionally occurred, and this they consider may best be obviated by the application of a thick layer of collodion to the limb, slightly bent, immediately after the injection, so as to act as a compressive bandage. The formation of the abscess took place in every case of injection except two. It is curious that the pus discharged generally contains no trace of mercury; it would seem that the calomel must be converted into sublimate and undergo absorption. As regards the frequency with which the hypodermic injection of calomel may be repeated, they state that in children two small injections are usually sufficient; in adults five or six grains may also be injected twice. They consider this method of treatment to be more certain and definite than the usual mode of administering mercury, and that it is especially well adapted for infants, pregnant women, and those who for various reasons are unable to take it by the mouth or to use it as an ointment. It seems to present, at any rate, many advantages over corrosive sublimate, which is much too violent in its action even in small doses. Still, the constant or almost constant production of an abscess will, we think, militate against its general introduction into English surgery.

Medical Annotations.

"Ne quid nimis."

GERMS IN GEORGE-STREET.

At a late meeting of the Medical Society of London, there took place what was by courtesy called a debate on Dr. Richardson's paper "On the Medical Aspects of the Germ Theory." As we have already stated, Dr. Richardson took up the position that the germ theory does not correspond with the conditions presented to our observation by disease; and that, if carried out to its legitimate conclusions, it undergoes a *reductio ad absurdum*. Thus, the hypothetical germs being omnipresent, reproductive, and indestructible by conditions that are fatal to higher organisms, it follows that, in the struggle for existence, they would supplant all others, and that the life of the universe would come to consist of germs alone. After giving some other illustrations of an analogous kind, Dr. Richardson pointed to the venomous snakes as examples of the fact that even the healthy animal body may continuously produce a secretion that is poisonous to other animals, and to the rabid dog as an example that a secretion innocuous in health may become poisonous when modified by disease. He then stated his physical theory of contagion, which is simply that communicable diseases convert natural secretions into poisons, and that the manufacture of poison continues until either the action of the disease, or the life of the organism, is brought to a close.

The discussion was opened by Mr. de Méric, who raised some pertinent objections rather to the form of Dr. Richardson's propositions than to the principles underlying them. He was followed by Dr. Sansom, who professed himself to be opposed to Dr. Richardson entirely, but who did not fully develop the grounds on which his opposition rested. In the course of the evening Dr. Burdon-Sanderson expressed his general assent to the paper; and added that the question was one that could not now be elucidated by discussion, or by anything but experiment; Mr. Brudenell Carter sketched the pathology and clinical history of contagious ophthalmia, and contended that these supported Dr. Richardson's views; Mr. Wolff suggested that the various morbid poisons might be less distinct than is commonly supposed; and Dr. Silver pointed out that the best success of the antiseptic treatment was no better than that which had been obtained independently of it. A number of other speakers mounted deftly upon various hobbies, and trotted them off into space, until recalled, by a gentle drumming of the heels of the audience, to a consciousness of the truism that men cannot even wander from a subject without consuming time. Dr. Richardson replied in a humorous and telling speech. His adversaries had not uttered much to which he could make answer; but he concluded his address by relating the legend of the foundation of the Carthusian monastic order. The monks of St. Bruno were praying round the dead body of one who had been the holiest and most austere member of their community. Suddenly the corpse raised its head, and uttered the words, "*Vocatus sum.*" Amid the continued prayers of the brethren, it raised itself still more, and exclaimed, "*Judicatus sum.*" An instant later and it stood erect, saying in a tone of agony, "*Damnatus sum.*" The horrified monks forthwith threw the body upon a dunghill, and vowed to observe a rule of perpetual silence. Dr. Richardson predicted that the advocates of the germ theory would shortly dispose of their idol in a similar manner, and would impose a like rule upon themselves.

MEDICAL SOCIETY OF LONDON.

At the first meeting of this Society for the present session, Mr. Gay, the President, gave an exceedingly able and interesting address on "Surgical Art and its Limitations," in which he argued that the surgical art, as distinguished from the science, was behind its privileges in so far as the importance of the strictly mechanical part of surgical art was over-estimated to the exclusion of the proper consideration of various hindrances to the success of surgical procedures. Mr. Gay held that surgeons did not sufficiently study the extent and influences of these latter agencies. In illustration of his statement he instanced the nature of the wounds made in operations as of moment. It was not so much the extent as the seat of the wound in relation to the organic system of nerves, those wounds being most liable to disturb the system which were made in tissues supplied by the sympathetic; those made with instruments of the keenest edge, and therefore possessing the utmost evenness, in his experience, being the best disposed to unite and heal satisfactorily, the fact being that all wounds of a torn character have a marked unevenness, explained by the different degree of resistance offered by the lacerated tissues. Hence the incisions made by the surgeon, Mr. Gay believed, could not be too few or too slight, provided they secured the immediate end in view. The écraseur and wounds made by it find no favor with Mr. Gay; who prefers the use of the silk ligature, moreover, with its ends cut off close to the vessel, to any other plan for securing arteries. The antiseptic treatment of wounds was declared not to have had a fair trial in London. Many other matters of detail in connexion with wounds were mentioned and discussed, after which the President passed to consider the constitutional conditions which militate against the success of the surgeon's endeavors, special stress being laid upon the pernicious and antagonistic operation of intemperance in the drunkard and his offspring; and of over-stimulation, especially in the preparation of patients for operation. Lastly, Mr. Gay passed in review the question of hospitalism, stating his belief in the truth, in the main, of Sir J. Simpson's propositions, and advocating the adaptation of the tent-hospital system as far as possible to English practice, in accordance with the views of older practitioners, Drs. Brocklesby, Pringle, and others, again brought into prominence by modern writers.

Dr. Andrew Clark then read a paper on "Basic Diseases of the Lungs," in which he detailed the history and post-mortems of several cases, which pointed to chronic bronchitis, aggravated and neglected, as the origin of tuberculisation of the lungs.

MILK AS A MEDIUM OF TYPHOID.

Dr. Ballard read a paper to the Association of Health Officers, on the 19th November, giving the results of a most exhaustive and exemplary inquiry into the causes of the localisation of the recent outbreak of typhoid in Islington. Dr. Ballard, after considering other possible theories, left no doubt in the mind of any listener that the typhoid was distributed from a dairy; that it was sent out with the milk, and even occurred in proportion as the milk was drunk. The proof of these conclusions was as nearly perfect as evidence in such matters can be. The customers of the dairyman—who, by the way, himself died of typhoid—had the disease in so much greater a degree than the rest of the community among whom they lived, as to be significant. Of 140 families supplied with the milk, 70 had typhoid. Then, although the great majority of the cases occurred within a very limited area, and in close proximity to the dairy, a few cases occurred at a distance, in the houses of families supplied from the dairy. Thus, in one long road a mile and a half from the dairy, there were three families thus supplied with milk; two of these had typhoid in them, and they were the only houses in which the malady occurred. In another near neighborhood four families were thus supplied, of which three were attacked with typhoid, they, too, being the only cases of typhoid in that part. These are very striking statements; but they would be more so if there were a registration of sickness, without which it does not seem to us that we can be sure that there were no other cases. Very curious instances were detailed of individual members of families contracting typhoid who alone in the family had been in the way of getting this deleterious milk. But in the families supplied females were attacked in decidedly larger proportion than males. Then there were very few solitary cases in the families served from the dairy. There were generally several cases in a family, and these, for the most part, occurred in the most milk-drinking members of it. Dr. Ballard had every assistance from the relatives of the dairyman in the investigation, and was supplied with a list of the customers, which revealed the above curious facts. It should be said that Dr. Ballard did not bring any charge of gross admixture of water with the milk, but rather seemed to believe that the disease was conveyed by the little water left in the milk-cans which had been used in washing them, and which was taken from a tank communicating with the drains. This supposition is perhaps more charitable than convincing. One of the first cases, if not the very first case, of typhoid occurred in a boy working at the dairy.

On the motion of Dr. George Buchanan, who characterised Dr. Ballard's paper as a piece of the best and clearest medical reasoning he had ever heard, the communication will be published by the Association.

PROFESSOR LAYCOCK ON LADY MEDICAL STUDENTS.

There are very varying opinions abroad in the medical profession and among the public as to the advisability of allowing women to practise medicine. There are still more serious and widely-spread doubts as to the possibility of educating ladies in the same lecture-rooms and dissecting-rooms with male students. But until last month we were not aware that anyone, in the profession or out of it, held that the mere fact of ladies wishing to be educated in common with men, in order that they might make sure of receiving the highest and most thorough scientific training, justified those who held contrary opinions in loading them with abuse and vulgar insult. It has been reserved for Dr. Laycock, professor in the famous University of Edinburgh, to set an example which, we trust, even the least courteous and gentlemanly of first-year's students will hesitate to follow.

We need not recapitulate the dispute about Miss Pechey's treatment in reference to the Hope scholarship; but at any rate we shall not be contradicted when we say that everyone who read Miss Pechey's own letter to *The Times* on the subject, must have at once perceived that she was a lady of high mental cultivation, and with very noble views of the aims of science. It was notoriously in consequence of the strong feeling which this lady's case excited that Professor Masson proposed to the General Council of the Edinburgh University the removal of all restrictions preventing male and female students of medicine from studying together in the same class-rooms. It was therefore to Miss Pechey, or to ladies like her, that the expressions of Professor Laycock must, by inference, be applied. We are not going to repeat those expressions here. We shall only remark, that if the coarsest of those few students who still keep alive the bad traditions of the Bob Sawyer period had given utterance to the insinuations which were used by this distinguished professor, we should simply have shrugged our shoulders, and concluded that the delinquent would be at once expelled with ignominy from his school. Unfortunately there are no such punishments for highly-placed men like Dr. Laycock, but at the least we can express the deep indignation and disgust which we are certain every gentleman in the profession must feel at the outrage of which he has been guilty.

THE FIRST DRESSING ON THE BATTLE-FIELD.

Professor Esmarch, of Kiel, has brought out, in a little pamphlet, a series of directions for applying the first dressing on the battle-field; and this has been translated by Dr. Thomas Guy, deputy inspector-general of army hospitals, with the laudable object of popularising its employment. The pamphlet is accompanied by a triangular sheet of calico, measuring 4 ft. by 2 ft., and serves to explain the various methods by which this piece of calico can be best utilised as a bandage. Professor Esmarch proposes that every combatant should carry one of these sheets (which folds into a parcel measuring 6 in. by 3 in., and is ¼ in. thick), and, in addition, two pieces of rag, smeared with carbolised ointment, to apply to wounds to prevent sticking of the cloth; and suggests that soldiers should be duly instructed in the use of the various forms of bandage into which the cloth can be folded. The specimen cloth before us has engraved upon it a group of wounded soldiers upon whom the sheet or handkerchief has been applied after various methods, most of which will be familiar to those of our readers who have studied the system of handkerchiefs invented by Dr. Mayor, of Lausanne, which is copied in many works on bandaging. We are happy to give prominence to this small but valuable work (which is published in this country by David Nutt), in accordance with the author's request, to "all who are interested in lessening the horrors of war to give it their kind and earnest support."

LOCALITY OF THE SENSE OF TASTE.

Dr. Camerer gives, in the last number of the *Zeitschrift für Biologie*, the results of his experiments on the locality of the sense of taste. He finds that the sensitiveness of different parts of the tongue depends essentially on the presence and number of the fungiform papillæ. These are most abundant near the apex of the tongue; they are less numerous at the edges of the organ, and disappear near the circumvallate papillæ. There are no papillæ on the under surface of the tongue. The mode in which Dr. Camerer conducted his experiments was to press a tube of about a third of an inch in diameter over different parts of the tongue and adjoining mucous membrane, and then to pour in a solution of the sapid substance to about the height of a quarter of an inch. Nine persons were experimented on, and the subject of the experiment did not in any instance know beforehand the nature of the solution the taste of which he was called upon to determine. The substances employed were common salt, sulphate of quinine, sugar, and sulphuric acid. From his experiments it appears that the parts of the tongue that are free from papillæ possess no sensibility; also, he finds that a weak solution of a salt is more readily perceived after pure water has been tasted than after a strong solution has been tasted during the previous twenty-four hours. By touching the fungiform papillæ with a fine spiculum of salt crystal he was able to show that the gustatory sensibility resided in the fungiform papillæ themselves, and not in the adjoining mucous membrane.

Correspondence.

"Audi alteram partem."

PREVALENCE OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—A few years ago the late Sir James Simpson advocated the stamping out of scarlet fever by the complete isolation of those suffering from it. Could this plan be effectually carried out, there is no doubt that the prevalence of the disease would be immensely diminished, and many thousands of lives saved every year.

The increasing prevalence of the disease in the the metropolis and in many other parts of the kingdom again attracts attention, and calls upon us to consider the means calculated to check its further spread.

In a disease so eminently contagious, isolation of the sick, their complete and thorough separation from all except the necessary attendants, until all danger of contagion is past, is the chief means by which this end is to be attained.

Among the better classes, where there is abundance of house accommodation, or where, in the absence of this, the means of obtaining further temporary accommodation are not wanting, isolation of the sick is not a matter of much difficulty. Among the lower classes, however, whose house accommodation is so often inadequate, such isolation is impossible. Their complete separation from the healthy can only be attained by removing them to hospital.

Among both rich and poor it is absolutely necessary that isolation should not cease until all danger of contagion is over. This is a point of the utmost importance. Isolation during the continuance of the fever is common enough, but that is not sufficient; it must, in a great many cases at least, be continued for some time after convalescence is established.

Both typhus and scarlet fevers are as contagious during convalescence as during the continuance of the fever, perhaps more so. Typhus so thoroughly prostrates a man that by the time he is able to mix with his fellow-creatures again the risk of communicating the disease to others is over. With scarlet fever this is by no means the case. One may have a smart attack of it, and in a week or ten days feel quite well and able to go about as usual; this can only be done, however, at the risk of troublesome sequelæ to the patient, and of giving the disease to those with whom he comes in contact. Nevertheless it is frequently done, and it cannot be too strongly impressed on the minds of both patients and friends that *not till desquamation is completed does the risk of communicating the disease cease.* That they should be fully aware of this is the more important as it is precisely in those cases in which the disease has concentrated itself on the skin, and in which recovery is most rapid, that desquamation is most abundant and prolonged. Such patients, moreover, are generally out of the hands of the medical attendant some time before they cease to be dangerous to their neighbors, and are apt to look upon themselves as all right as soon as medical surveillance ceases.

Let it be persistently and strongly impressed upon every one that a convalescent from scarlet fever is dangerous till all peeling of the skin has ceased. Let himself and his friends know that he is to be isolated, and his neighbors feel that he is to be avoided, till this process is completed, and one great means for checking the spread of the disease will be attained.

To carry out properly this system of isolation it would be necessary to provide convalescent houses, in which cases treated in hospitals might undergo a sort of quarantine, and in which they should be retained till all risk of contagion was past. Hospitals cannot be occupied by cases requiring no medical treatment, and yet such cases cannot be sent home without the likelihood of spreading the disease in the locality in which they reside.

The extent of the desquamation, and the time occupied by it, depend on the intensity of the previous rash. It may be completed in a few days, or not for six or seven weeks. The skin of the hands and feet is most slowly cast off, and it would be safe to adopt the rule that convalescents from scarlet fever are to be avoided till the hands have ceased to peel.

The cleansing and disinfecting of everything which has been about the patient should also be most strongly insisted on; without this precaution isolation cannot be effective.

This town, like so many others, was last winter visited by a severe epidemic of scarlet fever; during summer it declined, and by the end of that season had almost disappeared. Within the last month or six weeks there has again been an increase of the disease. The "why" of this increase may be a matter of opinion, but to me it seems to be due to two causes—first, the reopening of the schools, and the consequent free mingling of so many children; and, second, the reappearance of the clothes which had been used last winter (when the fever prevailed), and had been laid aside during the summer.

As an instance of the first cause I would give the following case, which came under my notice a few weeks ago. A girl, eight years of age, had a well-marked attack of scarlet fever. Within three weeks of the time at which she took ill, her father, mother, and five brothers and sisters, were similarly seized. On inquiring into the cause of the first case, I found that the little patient had told her mother, as something curious, that a companion next to whom she sat at school (and who, I learned, had recently had scarlet fever), had, since her return to school after an illness, been picking the skin off her fingers, a process in which my patient seemed to have been much interested. That this was the source whence she got the fever there can be no reasonable doubt. Those in charge of schools would do well not to receive any pupils convalescent from scarlet fever whose fingers were still peeling.

The following instance of the manner in which the disease may be conveyed by fomites came under my notice last summer. A lady residing in the north of England had two out of four children laid up with scarlet fever in March, 1870. One of them remaining delicate after his illness, she went in June to the highlands of Perthshire, taking all her children with her. At the beginning of August her husband joined her for a few weeks, taking with him, among other things, a woollen shawl, which the mother had been in the habit of wrapping round the children when removing them from bed during convalescence from their winter illness. Ten days after her father's arrival, one of the girls, who had escaped on the former occasion, was seized with scarlet fever. I found, on inquiry, that the shawl had been laid away in a drawer, after the former illness; that it had not been cleaned or disinfected in any way, and that, since her father's arrival, it had, on several occasions, when she was out driving, been wrapped round the girl who was now ill. No scarlet fever existed in the neighborhood. There is scarcely room for doubt that the shawl, in this case, was the means by which the poison was conveyed, and that it had retained it for a period of five months.

These two modes of communicating scarlet fever, by direct contact, and by the indirect agency of articles of dress, are far more common than they ought to be. Let every medical man do what he can to spread a knowledge of these facts among those having charge of sufferers from scarlet fever, and let those in charge carefully carry out the instructions given to them, and one great step in checking the spread of that disease will have been taken.

I am, Sir, your obedient servant,

T. J. MACLAGAN, M.D.

Dundee, Oct. 29th, 1870.

Foreign Gleanings.

BILLROTH ON BULLET-WOUNDS.

In the *Wien. Med. Woch.*, No. 49, 1870, this eminent surgeon gives his opinion on bullet-wounds. He considers that balls very seldom remain buried in the soft parts without giving rise to suppuration, and thinks that the lodgment of bullets for months and years without exciting abscess is very rare. Extraction should always be attempted except the balls have penetrated into any of the three cavities of the body. As regards the extremities, the operation should always be tried, the best instruments being the dressing or polypus forceps of different lengths. Billroth has tried the American bullet-forceps, but neither he nor his colleagues have found any advantage from its use. The author has heard the probe of Nélaton, with a porcelain knob, highly spoken of by German medical officers, but they found that the porcelain button should not be larger than a good-sized pea. Professor Billroth observes, finally, that experience in the extraction of ball is far preferable to the most ingenious instruments in unpractised hands.

CHLORAL AND STRYCHNINE.

Dr. Liebreich establishes a comparison between these two substances, in the *Berliner Kl. Woch.*, No. 43, 1870; and finds that they neutralise each other. As the symptoms of poisoning by strychnine are very similar to those of tetanus, chloral would be a sovereign remedy for the latter, if its effects could be made to extend longer than the pathological irritation (actual nature unknown) which gives rise to tetanus. Great improvement is, however obtained by using the hydrate, as it seems to change the form of the complaint from the acute to the chronic, a change very likely to be followed by a cure. The salt should be given in the form of enema, and the dose may vary from 37 to 75 grains. Full doses should be given at once. Hypodermic injections are only exceptionally to be used; but the author states that his injections with the platino-iridium syringe never were followed by abscess.

SUBNITRATE OF BISMUTH IN THE DIARRHŒA OF CHILDREN.

Dr. Lochner states, in the *Aerzt. Int. Bl.* (No. 37, 1870), that he treated in the hot summer of 1868 fifty cases of diarrhœa in children, and lost only one patient four months old. The dose generally reached sixty grains a day; and most cases were at once benefited, whilst in some from two to four days were necessary to arrest the complaint. The author thinks that the actual *modus operandi* is not known, and that therefore the discovery should be attempted by experiment upon animals.

TONSILLOTOMY.

Billroth had lately to remove the left tonsil upon a hysterical lady. In doing so, he pulled the organ energetically towards the mesial line, so as to ensure a complete section. By this traction a fold of the pharyngeal mucous membrane was drawn out and cut with the tonsil. The bleeding was fearful, and the Professor considered that some large branch of the pharyngeal artery contained in the fold had been divided. The patient would not allow of the pressure of the finger within the mouth, so that compression was used on the carotid with success. Billroth warns surgeons concerning the too forcible drawing out of the tonsil.

UREA ON THE SKIN.

In the *Deutsch. Arch. f. Klin. Med.*, vol. vii., parts 5 and 6, Dr. Deininger published the case of a boy five years of age, who suffered from anuria renalis for a whole week, and on whose skin urea was discovered. Five cases of this kind have been recorded by Jürgensen and Leube; but the issue was fatal in all, whereas Dr. Deininger's patient recovered. This vicarious function of the skin is therefore proved. and should encourage us to use diaphoretics whenever the action of the kidneys is diminished, or altogether abolished.

News Items, Medical Facts, &c.

PRESERVED MEAT.—Dr. Stein, of Dresden, while lecturing lately on the preservation of food, opened a tin canister of meat preserved by what is known as Apert's method, and prepared by him in 1851. The meat, on examination, it is said, was found to be as fresh and of as good a flavor as when placed in the canister nineteen years previously.

A LARGE DOSE OF CHLORAL.—As much as 160 grains of the hydrate of chloral was lately given, by mistake, in one dose, to a middle-aged man in a hospital of this metropolis. Some alarm was felt, but no disagreeable symptoms occurred; the man slept well, and no unpleasant effects resulted.

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JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

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PRACTICAL PHYSIOLOGY.

Lectures
ON
EXPERIMENTAL PHYSIOLOGY.

By Wm. Rutherford, M.D., F.R.S.E.,
Professor of Physiology in King's College.

LECTURE I.—Introductory.

OBSERVATION AND EXPERIMENT.

Gentlemen,—Physiology, like every other branch of natural science, is based upon observation and experiment.

When we merely observe natural phenomena we do not interfere with them in any way; we simply watch them. Scientifically speaking, we *observe*, not only when we look at a thing, but also when we listen to it, when we taste it, smell it, touch it, feel its weight or temperature. Our senses may be aided by various appliances. For example, we use a microscope to enable us to see things that are small; or we employ such instruments as the ophthalmoscope, the laryngoscope, or the endoscope, in order to see some of the hidden parts of the body. We often help our sense of hearing with a stethoscope. Our thermal sense receives the aid of the thermometer and other instruments. The balance assists our sense of weight, the sphygmograph our tactile sense,—and so on. I might adduce other examples; but these are sufficient to show how the range of our powers of observation may be extended.

The mere observation of physiological phenomena is not a means of research which is powerful in enabling us to find out the causes of events. For this purpose experiment is generally necessary. When we experiment we no longer merely regard things as they are, but we interfere with them in some way, and observe the results of our interference. A single illustration will suffice to impress you with this distinction. We have—all of us—often noticed the fact that, at intervals, our chests rise and fall: that is an *observation*. Now, be good enough to arrest these movements; in other words, hold your breath. In so doing you interfere with the phenomenon previously observed—you perform an *experiment*. Cease to breathe as long as you can, and observe the results. Ere the experiment proceeds far you experience an unpleasant sensation, and a desire to take a breath. Before very many seconds have elapsed this desire becomes so intense that you are unable longer to resist its impulse. You breathe, and almost immediately thereafter you experience an agreeable feeling of relief. The results of this simple observation and experiment are—that your chests rise and fall at intervals, and that if you hold your breath you soon experience an unpleasant sensation and a desire to breathe. An agreeable feeling follows the re-establishment of the respiratory movements. These are *facts*. It is quite impossible for you to form an exaggerated idea of the importance of carefully ascertaining what are the *facts* of any case. It is, of course, extremely easy to unbridle the fancy and imagine any number of events that might take place. It is quite another matter to find out those which really do occur. Medicine has suffered terribly, and does still suffer, from the poisonous effects of *false facts*, or I should rather say of *fictions*, which have been put forth as facts. It seems monstrous that in the scientific world anyone should say he has seen that which he has not seen; yet it is to be feared that some are guilty even of this gross offence. The majority of untruths are, however, due to hasty and imperfect observation, and to faults of memory. It too often happens that in practical medicine experiments are not watched with the patience and care which they require. The results are frequently entrusted to the memory instead of being recorded at the moment of observation. The lapse of time often produces painful distortions of them which the observer is unconscious of. This unsatisfactory mode of procedure is fraught with evil; the scanty amount of reliable knowledge which we at present possess regarding the actions of remedies is in large measure due to its baneful influence. Scientific facts ought never to be left tossing to and fro at the mercy of a sea so proverbially treacherous as that of memory. Let me, therefore, urge you to ascertain facts with infinite care, and to make an accurate record of them as speedily as possible.

From an assemblage of facts, or even from a single fact, we draw conclusions. Here it is needful that we be particularly on our guard. Physiological experiments are usually of a very complex nature. Living things are fickle: the same individual varies much in even short periods of time; one individual, too, differs much from another of even the same species. It is impossible to take any two living beings, and say that the vital phenomena of the one are in every respect identical with those of the other. For the solution of most physiological problems a large number of observations and experiments are therefore necessary. Suppose, for example, it be our object to ascertain the influence of some therapeutical agent upon the blood pressure: we do not content ourselves with a single experiment, for we know that the blood pressure undergoes much variation even when an animal is in a physiological condition; and therefore when we desire to determine the precise effect of any reagent upon the pressure, we require to perform a number of experiments ere we venture to draw conclusions. In consequence of this inconstancy in the phenomena of life physiology wears, for the present, an aspect which differs very decidedly from that which physics and chemistry present. These sciences have a precision which physiology in many of her departments still lacks. It is as yet impossible for us to take any two nerves, and say beforehand that the degree of excitability of the one is equal to that of the other. Hence we cannot say *à priori* that an influence which is sufficient to affect the one will suffice to affect the other. Of this fact we have daily demonstrations in the effects produced by an orator upon his audience: the same idea may move some to tears and others to laughter; some may experience a peculiar sensation at the roots of their hair, while others are scarcely affected at all. In the same way an electric shock communicated to a number of individuals at the same moment fails to affect all to a like degree. It may cause one person to manifest signs of pain and fright, while another remains almost indifferent to it. A similar variation in results is observed on the administration of many drugs. This want of precision can only be supplied by our ascertaining how physiological phenomena can be so regulated that in any two individuals they can be made identical; or by ascertaining what is the precise difference between the physiological states of any two individuals. Until we accomplish this, physiology, and of course medicine, cannot be precise. Every day throws new light on the manner in which our difficulties in this path may be diminished. To overcome them is what we are all striving after. As yet we can have no conception of the greatness of future achievements in this direction. I might give you various reasons why I fear that these achievements will never be complete; but that gloomy side of the picture we will pass by, lest it make a dangerously deep impression on our minds.

Regarding, then, the fickleness of physiological events, let us beware of drawing conclusions from scanty data, lest we thereby deepen the darkness which we seek to lighten. The physiological exploration that lies before us is mostly of a difficult character; most of the easy things have been done. You need not hope to discover many things by accident. Your best discoveries will, in all probability, be those which are made in the pursuit of some line of research entered upon after much careful and piercing thought. Should you frame ideas, and then proceed to prove their truth by the touchstone of experiment, it is very necessary to beware of fitting the facts to the hypothesis. You must ever hold yourselves in readiness to abandon the idea the moment you find it to be incompatible with fact.

With these brief considerations regarding the method of inquiry to be adopted in physiological research, let us examine a few fundamental principles concerning

MATTER AND ENERGY.

the two factors of the physical world. The necessity for our forming the basis of our operations in this way will soon become apparent.

Matter has been defined as that "which occupies space"; but with regard to its ultimate nature, we are in profound ignorance.

Energy is the term now applied to that which was formerly designated *force*. It has been admirably defined as "the power of doing work": but with regard to its ultimate nature, we know nothing definite. Perhaps it is only an attribute of matter; but whether that be true or not, it is extremely convenient to speak of it as a *thing*.

There are various kinds of matter, which, as far as we know, differ essentially from one another. These are the chemical elements. True, matter may undergo marvellous transformations. How different a bit of charcoal is from a diamond! How different a caterpillar is from a butterfly! What resemblance is there between a lump of ice and its components oxygen and hydrogen? Yet amid these metamorphoses of matter, there is this important fact, that the elementary kinds of matter cannot by any means at present at our disposal be transformed one into another.

There are various kinds of energy, or, I should rather say, *forms* of energy; for, unlike the elementary kinds of matter, one sort of energy can be transformed into another. Probably the various manifestations of the action of energy—e. g., heat, light, sound, motion—are all referable to the action of two great forms of energy, attraction and repulsion. Thus we have chemical attraction or affinity, electrical and magnetic attraction, the attraction of gravity, and that of cohesion. On the other hand, we have electrical and magnetic and thermal repulsion. The attractive and repulsive forms of energy give rise to various movements of matter. These motions may be, ordinary or visible motion, the motion which gives rise to sound, those which are supposed to constitute heat, light, and nerve energy. For convenience, motion is often spoken of as if it were energy; hence heat, light, sound, &c., are often called forms of energy. In truth, however, motion is but the result of the action of energy, and therefore the various motions are not in themselves forms of energy, but manifestations of the action of one or more forms of energy. Keeping this in view, it is however convenient that we should adopt the usual phraseology, and speak of these different motions as forms of energy.

The forms of energy are usually classified into physical, chemical, and vital. The physical forms are manifested by heat, light, sound, ordinary motion, electricity, magnetism, repulsion, cohesion, and the attraction of gravity. The so-called chemical form of energy is chemical affinity. All these forms of energy are found in living beings. In addition to these, however, living things manifest forms of energy which are not found in the inorganic world. These are termed *vital* forms of energy. These include nerve energy, the energy which produces a change in the form of contractile tissues, and that which causes a living being to grow in its own peculiar fashion. It is however impossible, in the present state of our knowledge, to say with certainty what are the members of these three groups, more especially of this last.

Let us now attend to some experiments illustrative of this interesting fact, that one form of energy may be transformed into another. I show you a galvanic battery (two large Bunsen's cells). A current of electricity is being produced by the battery. I might demonstrate this fact to you in various ways; one will suffice. It has been ascertained to be a fact that, under certain conditions, a current of electricity from a battery of this sort is able to cause a magnetic needle to move. I shall not at present enter into a description of the necessary arrangement of the magnetic needle, or of the wire which is to conduct the electricity round it. These arrangements have all been made; for the present, therefore, content yourselves with simply watching the needle. You see that at this moment it is motionless. Now, however, I permit a portion of the electrical current produced in the battery to flow through the wire which surrounds the needle. The needle suddenly swings round. This fact shows that a current of electricity is being generated in the battery; and it further shows that this electrical current can produce ordinary motion. The form of energy passing from the battery along the wire gives rise to another form of energy, manifested by ordinary motion. But this electricity may give rise to other forms of energy; for example, heat and light. At this moment the electrical current is flowing through a thick copper wire. Touch the wire, and you will scarcely detect that its temperature is above that of this other copper wire through which no electricity is passing at all. But watch what happens when I cut the electrified wire and connect its cut ends by a piece of thin platinum wire. The platinum wire glows with a white heat! Whence come the heat and light? From the electrical motion. They are peculiar vibratory motions to which the electrical motion is giving rise. Hence the motion of the electricity along the wire may give rise to ordinary visible motion in a magnet, or it may produce the exquisitely fine undulatory motions of heat and light. But, on the other hand, electrical motion may be derived from heat. For this purpose we employ this piece of apparatus, named a thermopile. It consists of a pile of metallic bars joined together like the limbs of the letter W. The bars are not all of the same metal: every alternate bar consists of bismuth, and the remaining ones of antimony. The ends of the bismuth bars are soldered to the extremities of those of antimony. One end of one of the bismuth bars is joined to a thick copper wire, the other end of which is joined to a free end of one of the antimony bars. (The unsoldered ends of these bars resemble the free ends of the limbs of the above-mentioned letter.) The wire is coiled round a magnetic needle. If *heterogeneous* metals such as those which I have mentioned be heated at their points of junction, a current of electricity results. I hold my warm hand near the junctions, and you see that the magnetic needle is slowly turning; thereby indicating that a current of electricity is passing through the wire. Thermal motion is producing electrical motion, and this again is giving rise to ordinary motion. Heat, or, in other words, thermal motion, may, however, be transformed into ordinary motion in other ways. Look, for example, at the water in this glass, bubbling and boiling in the greatest commotion. What causes it to move? The heat of the flame below it. Thermal motion is giving rise to repulsive motion, and this in turn to ordinary motion. But, conversely, we can readily transform ordinary motion into thermal motion. I cannot show you the Indian trick of producing fire by rubbing two pieces of wood upon one another; but I can readily produce a similar though not so brilliant phenomenon by hammering this piece of lead. A few blows in rapid succession suffice to render the lead so hot that the hand can scarcely bear the heat. Here, the visible motion of the hammer gives rise to a visible motion in the lead, causing a change in its form; but it at the same time produces an invisible motion which constitutes heat. You hear that sound is likewise produced: this is another kind of motion which is engendered in the lead by the visible motion of the hammer.

Chemical energy is a prolific parent of other forms of energy. I subject this lucifer match to friction, and there suddenly results sound, heat, and light. How come these? The visible motion of my arm gives rise to thermal motion. The moment the temperature is high enough the chemical affinity between the particles at the head of the match comes into operation; and while old compounds are split up, and new ones are formed, heat, light, and sound, or, in other words, thermal, luminous, and sonorous motions are produced. But really the visible motion of my hand is due to the chemical energy acting within the muscles of my arm. The operation of this chemical energy is brought about by the action of nerve energy, which liberates the chemical energy of my muscles, just as heat can liberate the chemical energy stored up in the lucifer match. Probably all the forms of energy produced in our bodies are derived from chemical energy stored up in the gaseous and solid food of which we are in continual need, and without which we cannot energise at all. It is perhaps not altogether acceptable that we should compare ourselves to steam-engines; yet, in some senses, we closely resemble them. The steam-engine derives its energy from chemical energy. It requires to be constantly supplied with appropriate substances, whose chemical energy can furnish the energy which is to do the work. We are just as helpless as the steam-engine with regard to the obtaining of energy; we cannot create it; we are compelled to borrow it, and, like the engine, we borrow it from the oxygen of the air, and from organic substances stored up in plants. But you will say, How do plants come to be the fortunate possessors of this subtle energy? Have they created it? No; they in turn have only borrowed it from the sun's rays. Under the agency of the energy emitted by the sun, the tissues of a plant decompose various substances, the chief of which is carbonic acid. The carbon of this is stored up in the plant, while most of the oxygen is given off into the air. The sun's energy, contained in his thermal and chemical rays, tears asunder the carbon and oxygen, and in so doing stores up within both energy in the form of chemical attraction. When the plant tissues are burnt, the energy which the sun expended in separating oxygen from carbon is again obtained in its original forms of heat and light. If the combustion take place within the bodies of living animals, then, besides the heat, various other forms of energy result. This simple union of carbon with oxygen is the chief source of the various forms of energy exhibited by living beings. But you may ask, What is the source of the sun's energy? The only hypothesis which we have to account for this is, that at a remote period our planetary system was composed of diffused nebulous matter. Condensation and accumulation of this matter in the form of balls afterwards took place, and in this way the sun and his planets arose. The clashing together of particles of matter gave rise to enormous quantities of heat, which is slowly diffusing itself throughout space, and will continue to do so until there is an equal temperature over all. This hypothesis, therefore, ascribes the source of the sun's heat to the attraction of gravity. Most probably this is true; but mind you, it is only a hypothesis.

It has long been known that we cannot create or destroy matter. The labors of Joule and others have led to the belief that the same principle applies to energy. This principle is that which is termed the law of the conservation of energy. To express it in another way, we may say that the amount of energy in the universe is fixed—that is, we cannot detract from it or add to it, however much we may metamorphose fractions of it. A portion of one form of energy may be transformed into an exact equivalent of another. Nothing is lost. At first thought this does not seem to be true. When I let the hammer fall on the lead, it seemed as though the energy represented by the hammer's motion was annihilated the moment it fell. The most careful experiments have, however, completely demonstrated that in such a case the energy of the falling body is completely transmuted into other forms of energy. As shown by Joule, if one pound of water fall through a height of 772 feet, its temperature will be raised 1° Fahr. But, further, the amount of heat necessary to elevate the temperature of a pound of water 1° Fahr. will suffice to do an amount of work represented by the elevation of this quantity of water to a height of 772 feet.

These facts are of great value. Adopting the ordinary phraseology, we say they show that a certain amount of ordinary motion can give rise to a definite amount of thermal motion or heat, and that, conversely, a definite amount of heat can produce a definite amount of ordinary motion—in other words, can do a definite amount of work. We have seen that energy is "the power of doing work." We now see that a definite amount of energy in the form of heat can only accomplish a certain amount of work. But what is true of heat is true of any other form of energy. We know well that we cannot do work unless we eat. The store of energy at the disposal of the strongest of us is not unlimited; sooner or later it does its equivalent of work, and we, exhausted for the time, require to take in a renewed supply of food, with its store of energy.

In order to indicate any quantity of energy, it is necessary to adopt some unit, just as we use a grain or a pound as units when speaking of quantities of matter. The unit most commonly employed is a thermal unit—to wit, the amount of heat necessary to raise one pound of water through 1° Fahr. This unit is frequently employed, and therefore it is needful that you remember it. A heat-unit has been adopted because of its convenience, and, moreover, because every form of energy passes so readily into heat. An electrical unit is used for some purposes; but it is not my intention at present to enter into this matter. Before passing, however, let me say that a unit of work has been adopted, and it is important that you should remember what it is. The work-unit is the amount of work necessary to raise one pound one foot high; it is therefore named the *foot-pound*. We have seen that the amount of heat necessary to raise one pound of water 1° Fahr. is able to raise this amount of water 772 ft. high if it be made to do mechanical work; in other words, it can do 772 foot-pounds of work. One thermal unit is therefore equivalent to 772 work-units. Carefully remember these data; they are of much value in physiological dynamics. It is, however, important for me to state that, although the law of the conservation of energy holds good in the inorganic world, it has not as yet been shown to rule over all the forms of energy found in living beings. But no fact yet known is opposed to it; and every known fact completely supports it. We cannot doubt that it reigns as supreme in the organic as it does in the inorganic world.

I have hitherto abstained from employing two terms, which are, however, constantly used in speaking of energy. These terms are *potential* and *actual*. Energy may be potential or actual. When energy is potential, it is, as it were, at rest; it is capable of doing work, but not doing it. When energy is actual, it is active, doing work. This convenient distinction—made first of all by Rankine—will be rendered clear by one or two illustrations. A convenient example is that afforded by a cross-bow. When I draw the string of this bow, the muscles of my arm evolve actual energy, which is producing ordinary motion of my hand, motion of the string, and through it motion of the bow. I fix the string, and so set the bow in its bent position. Everything is now at rest. The actual energy I put forth has now become, as it were, stored up in the bow as potential energy, ready to be retransformed into actual energy the moment the string is let go. Again, gunpowder is a magazine of potential energy in the form of chemical affinity. When actual energy in the form of heat is applied to a few grains of a mass, however large, chemical affinity comes speedily into play throughout the whole mass, and actual energy in the forms of heat, light, and sound is evolved. The sun emits actual energy. This is stored up as potential energy in the tissues of plants. We consume these stores of potential energy, and convert the potential into actual energy, which does the work needed in our bodies.

I must now bring to a close this brief account of these fundamental considerations regarding matter and energy. In your physiological investigations I would urge you to keep steadily in view two lines of inquiry. With one eye, as it were, watch all that relates to *matter;* with the other regard all that has reference to *energy*. Only thus can a complete conception of physiological phenomena ever be obtained. Matter and energy are continually passing into and out of the body, after having played their parts in the marvellously complex arrangements of which our bodies consist. The matter and the energy enter together united in our solid and gaseous food. The matter is needed to repair and build up the machine, and to introduce to the organism the energy which is required for its various works. The matter leaves the body with its energy almost completely, if not entirely, expended. The energy which has been used in the body leaves it chiefly in the form of heat, that form of energy which all actual energy ultimately comes to. The matter of our bodies comes from the air and the earth, and returns to these. The actual energy of our bodies, linked on to the matter by the sun, ultimately assumes the form of heat, and diffuses into infinite space.

I have carefully abstained from entering upon any metaphysical discussion. All that relates to the spiritual part of our being is foreign to even an *introduction* to a course of experimental physiology.

Note.—For the benefit of those who have not attended this course it may be well to state that the experiments are performed by the teacher with the aid of the students. The vivisections performed are few in number, and confined to the frog and rabbit. The animals are previously narcotised by opium or chloral.

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TWO
Practical Lectures
ON THE
USE OF THE OPHTHALMOSCOPE.

By R. Brudenell Carter, F.R.C.S.,

Ophthalmic Surgeon to St. George's Hospital; Surgeon to the Royal South London Ophthalmic Hospital.

LECTURE I.

Gentlemen,—The use of the little instrument that I hold up before you becomes every year more important to practitioners in every department of the healing art; and there is too much reason to believe that familiarity with it has been retarded, rather than promoted, by very much that has been written upon the subject. The ophthalmoscope, like every other optical instrument, owes its powers to the practical application of optical principles; and, while the invention was comparatively new, it was not unnatural that these principles should be brought into prominence by authors. It so happened, moreover, that they were derived from a science that has not hitherto been regarded as a necessary part of medical education, and that they were expressed in phrases foreign to medical parlance. Students and practitioners not uncommonly recoiled from pages that bristled with equations and were adorned by mathematical diagrams, and gained from them nothing but the belief that new forms of thought must be mastered before the ophthalmoscope could be profitably employed. This belief is a pure and absolute delusion. To see with the ophthalmoscope is an art so easy and simple that any intelligent child of ten years old would acquire it by the aid of half-an-hour's instruction; and to interpret the appearances seen requires a knowledge of anatomy and of pathology rather than of optics. A few questions will now and then present themselves, chiefly with reference to the relation of real to apparent magnitude, which a knowledge of certain of the elementary laws of optics suffices to resolve as they arise; but even these may be resolved, perhaps with a little more trouble, by other methods. An acquaintance with the principles which underlie the instrument is no more essential to the use of the ophthalmoscope than it is to the use of the microscope.

And here I would guard myself against being misunderstood, or against any suspicion of being supposed to underrate the value of the knowledge that I still tell you may be done without. I am a very earnest advocate for a far higher standard of preliminary education for the medical profession than any that has yet been put forward by authority; and I hold that some real comprehension of the elements of mathematics is absolutely necessary for those whose business it will be to track truth through the mazes of natural phenomena. I hold that the man who has mastered, and thoroughly understands, even the Pons Asinorum, is for most purposes equal to two men of similar capacity who have never undergone that mental discipline. The former has enjoyed an experience of absolute verity which, small though it be, should render him antagonistic to error; and an experience of perfect demonstration which should protect him from becoming a slave to fallacies. But this value of mathematics is wholly general, and rests upon its influence as a fertiliser and stimulant of the mind—not upon its immediate practical applicability to some inquiry that is in hand. Viewed in the latter light alone, I should regard it as well nigh useless, and should regret to see time withdrawn from strictly professional studies for its sake. I would by every means in my power urge those who destine their sons for the medical profession to consider the study of mathematics an essential preliminary; but at the same time I tell you, as a simple fact, that you may become expert ophthalmoscopists by the aid of eyes and common sense alone. Upon this basis, and upon this only, I propose to build up my instructions.

We see anything, no matter what, by virtue of the light proceeding from it, and the light that proceeds from an eye is so refracted by its humours that it proceeds direct to the point at which the eye is looking, and does not spread itself out laterally. If we place a lamp in front of an eye that we wish to look at, we cannot see its interior, because we must either go beyond the lamp, so that the flame forms an intervening object, or between the flame and the eye, so that we intercept the light. It is necessary to put the lamp at the side of the patient's head, and to turn the light from this lateral source into the eye by a mirror. We then make a hole in the mirror, and through this hole we receive the light that returns from the interior of the organ. A mirror with a hole in it is the only essential feature of an ophthalmoscope; and its use is to enable us to light up an eye, and to receive the returning rays, without impediment from the intervention of the flame, or from the opacity of the cranium of the observer.

In dealing with a complex instrument it is always the wisest and quickest course first to attain the mastery of its essential part, and to add the other parts by degrees. If you take up a complete ophthalmoscope, and begin by trying to examine an eye, you will only disappoint yourselves, and weary your patient. Your first care should be to know exactly what you have to do with the mirror, and how to do it.

You have, in the first place, to light up the interior of the eye, next to see the illumination through the hole in the mirror, and lastly to acquire the art of moving your own head to and fro, now nearer to the patient, now farther from him, without allowing the light to wander from the track in which it was originally directed. You may acquire all this perfectly without useing an eye as your object at all.

I think the best plan is to take a piece of white paper, make a spot or mark upon it about as large as a dilated pupil, and place it before you in an upright position, with the spot level with and exactly opposite your right eye. Then place a lamp, with its flame at the same level, a little to the right of the paper and a little behind it, so that the spot will be in shadow. Next, take the ophthalmoscope mirror, place its upper margin against that of the right orbit, with the handle directed vertically downwards against the cheek, and held tightly between the finger and thumb of the right hand. Look through the hole, and observe where the reflection of the mirror is thrown, and then so manœuvre the latter as to bring this reflection upon the spot, which should be seen brightly illuminated. Retaining the mirror in the same position, draw the head an inch or two backwards. As this is done the illumination will leave the spot, and may be brought back to it again by the slightest possible rotation of the vertical handle of the mirror. If the illumination wander to the left, the rotation must bring the left edge of the mirror forwards, and *vice versa*. If the illumination wander upwards or downwards, the mirror must be made to rotate also on its horizontal axis, and five minutes thus employed will give the knack of bringing back the light to the desired point. This gained, the next step is to make the rotation of the mirror coincident with the to-and-fro movement of the head, instead of subsequent to it, so that the light shall never leave the spot at all. The head must first be moved backwards or forwards very slowly, until the hand and eye learn to appreciate the exact degree of rotation that is required, and then the pace must be increased. The object is to learn to move the head quickly to and fro over several inches without letting the reflected light ever depart from the spot to be illuminated. Care must be taken never to move the head laterally, because you must be exactly opposite an eye in order to see into it.

When thus much is accomplished, when you have learnt to illuminate the spot continuously, from different distances, from the right side, the lamp should be moved to the left, and the practice repeated, and the left eye should also be employed for both kinds of illumination.

The next step is to take in the disengaged hand one of the larger lenses of the ophthalmoscope case, and to place it between the mirror and the paper, at a distance of two or three inches from the latter, so as to look at the spot through this lens, as well as through the hole, without disturbing the illumination. A few trials will render the lens hand and the mirror hand independent of each other, so that the lens can be interposed or withdrawn, moved nearer to the paper or farther from it, without the mirror being disturbed, and so that the head and mirror can be moved forwards or backwards, while the position of the lens remains unchanged. When this knack has been attained, the whole art of ophthalmoscopy is acquired.

In order to carry it into actual practice, you seat yourself opposite the patient—your eyes on the same level with his, and the eye which you are going to employ exactly in front of that which you are going to examine. The light must be at the side of the patient's head, and a little behind it; and, for early trials, the pupil of the eye to be examined should be dilated by atropine, although practice will soon render this unnecessary. You then treat this eye like the spot on the paper—that is, you illuminate the pupil with the mirror, and look at it through the hole. You will see it return a uniform reddish or whitish glow, sometimes diversified by visible vessels. You next interpose the convex lens, holding it about two or three inches from the eye under examination, and you will perhaps immediately see the details of the *fundus oculi* sharply defined. If you do not, if you still see only the reddish glow, you are either too near the eye or too distant from it, probably the former. You move your head steadily back, preserving the illumination, until vessels come *clearly and sharply* into view. As long as you have the red glow, a clearly defined image is only a question of distance, like that of drawing out the tube of a telescope, and may always be attained with perfect certainty. Let us see why this is so.

If you hold up your ophthalmoscope lens, at a distance of about 18 in. from your eye, and look through it at any distant object, you will see an inverted image of that object. The image appears to you to be painted on the lens, but it is really suspended in the air, nearer to you than the lens by the focal length of the latter. You can test this by a simple experiment. Take a printed page, move it slowly towards one eye, the other being closed, until the letters begin to be indistinct. Measure the distance between the eye and the page at which this indistinctness commences, and let us suppose that it is 8 inches. Then get the inverted image again, move the lens slowly towards the eye, and measure the distance between the two at which the image begins to be indistinct. This distance will be 8 in., *plus* the focal length of the lens. If it be a 2-in. lens, the distance will be 10 in.; if a 3-in., 11 in.,—thus showing that the inverted image advances in front of the lens, and comes to within 8 in. of the eye, while the lens is still at a greater distance away.

Now, that which we see with the ophthalmoscope, when the lens is interposed and the right distance attained, is an inverted image of the parts at the back of the eyeball; and this image is nearer to us than the lens by the focal length of the latter. Suppose the lens is of two inches focal length, and is held three inches from the eye of the patient, then the image will be five inches from the patient. If the observer has eight inches as his nearest distance for clear vision, his eye must be *at least* that distance from the image, or thirteen inches from the patient, in order to get definition; and so long as the two faces are only a foot apart, the observer will see nothing but muddle and obscurity.

This, then, is the whole art of seeing with the ophthalmoscope. You have only to learn to keep your seeing eye exactly opposite that of the patient, and to maintain your illumination while you vary your distance, in order to obtain as clear an image of the details of the fundus oculi as a telescope will give you of the details of a landscape.

Ophthalmoscopes, as commonly sold, are packed in cases which contain two large lenses and five small ones; and there is a little spring clip behind the mirror, in which any one of the small lenses may be placed. I proceed to consider the uses of these several parts.

The two large lenses are both convex, but of different powers. One of them is usually of two inches focal length, the other of three. The lens of shorter focal length is the more powerful magnifier, as may be ascertained instantly by trial.

But the more powerful the magnifier, when used in the ordinary way, the smaller will be the *inverted* image that it yields, which also may be tested in a moment on any distant object, and hence the 3-in. lens will afford a larger image than the 2-in. The 2-in. lens, on the other hand, will show more of the fundus oculi at one view; so that we often use it for a general inspection, and then take the 3-in. for the more accurate examination of some point of detail. The power to increase enlargement by weakening the lens is, however, limited, and that for two reasons. In the first place, as the illumination remains the same, the light which is sufficient to form a bright small image is no longer enough when the image is spread over a larger surface. In the next place, the image must be kept at least eight or ten inches from the eye of the observer, and must not, therefore, be very far distant from that of the patient. It is desirable to rest the hand that holds the lens on the patient's cheek, forehead, or orbital margin, in order to secure steadiness, and hence the faces can only be at arm's length apart.

Of the five small lenses, one is convex, usually of 10 in. or 12 in. focal length. This serves to magnifiy the inverted image, exactly as the eyepiece of a microscope magnifies the image produced by the objective. We may therefore call the large lens the object-glass, and the small lens the eyeglass, of the ophthalmoscope. The other four small lenses are concave, and to these we shall return presently. They are intended for a different method of examination.

Before proceeding to describe this method, I would say that I think the concave lenses usually supplied are insufficient for the purposes of careful and minute examination, because they do not afford sufficient enlargement. I carry in my case two object-glasses, one of 2 in. focal length, the other of 3½ in.; and two eye-glasses, one of 12 in., and the other of 7 in. The 2-in. object-glass with the 12-in. ocular gives a good general view of the fundus; but the 3½-in. with the 7-in. affords very great enlargement of details, and reveals pathological changes that could not have been discovered without its aid; while the four possible combinations enable us to subject any particular morbid change to four successive degrees of enlargement, a mode of examination that is often of great value in clearing up some doubtful point.

If now we lay the lenses aside, and, taking the mirror only, come quite close to the patient, so as to bring our eye within one or two inches of his, we shall find a distance at which, if he is not short-sighted, we can quite clearly see the details of the fundus, no longer inverted, but in their natural position, and highly magnified by the crystalline lens of the examined eye itself. This is called the "direct" method of examination, and it is extremely valuable as a check to the appearances presented by the inverted image. It is attended by the objection that the close approximation of faces is not always desirable. If the patient be short-sighted, we shall see nothing without the interposition of a concave lens, and the four small ones already referred to are provided to meet this contingency. As ophthalmoscope mirrors are commonly made with a moderately large perforation, the direct method requires an artificially dilated pupil: but I am indebted to Dr. Liebreich for the knowledge that, by diminishing the size of the mirror perforation, we may always see directly through an undilated pupil; and I now almost invariably combine both methods of examination. In order to do so, without the use of atropine, it is desirable to have not only a very small perforation, but also a very small mirror, so that the reflection from it should not be large enough to extend beyond the corneal margin. The light that falls beyond the margin of the pupil is useless for purposes of observation, but all that falls beyond the cornea is injurious. The iris may be regarded as being absolutely opaque; but the sclerotic is translucent, and a strong light falling upon it enters the eye, and produces contraction of the pupil. When the mirror is very close, the size of the reflection from it depends mainly upon the size of its surface; and, for the direct method, a mirror as large as a silver threepenny-piece is sufficient, with a perforation that should scarcely exceed one millimetre in diameter. For the inverted image, however, it is well to collect the light from a rather larger surface; and a mirror the size of a shilling leaves little to be desired for both purposes, if only its perforation be small enough. It may be mounted on a handle an inch and a half long, and carried, with its four lenses, in a little purse three inches long by an inch and a half wide. Such an instrument may be obtained from Messrs. Weiss and Son, and forms a complete ophthalmoscope equipment in the most compact and useful form. The concave lenses, for obtaining the direct image from short-sighted eyes, may be regarded as superfluous, since such eyes may be examined by the more ordinary method. If, however, the observer is himself short-sighted, and desires to employ the direct method, he must be supplied with that concave ocular which will precisely neutralise his own defect.

Before I leave the subject of the mere management of the instrument, and proceed to describe what it reveals, I ought to mention that the object-lens should always be held a little obliquely. If it be perpendicular to the course of the light, it will return a reflected image of the mirror from each surface. By giving it a slight obliquity, these reflected images will be moved in opposite directions, and the details of the fundus will be seen between them.

LECTURE II.

GENTLEMEN,—In my first lecture I brought before you the steps by which you may soon attain proficency in handling the ophthalmoscope, and I now proceed to consider the interpretation of the appearances that it reveals.

It is important to commence your practice upon healthy eyes and normal conditions; and as the little instrument that I have described to you requires no dilatation of the pupil, you may use it upon all those with whom you are associated: upon your companions, upon the members of your families, and especially upon children, whose pupils, *cœtĕris paribus*, are generally more dilated than those of their elders. In this way you may learn to appreciate the great range of physiological variation in the aspects of the fundus oculi, and thus prepare yourselves both to recognise the existence of morbid change and to determine its seat and character.

The appearances seen within the eye are determined by the relative position, and the relative transparency, of the structures that it contains. On account of their transparency, the media in front of the retina are invisible in their normal condition; and, excepting in very light eyes, the healthy choroid completely conceals the sclerotic. The only structures visible under ordinary circumstances are the retina and optic nerve, with their vessels, and the choroid coat behind them.

The interior of the sclerotic coat, when visible, presents a surface of almost shining whiteness, and with this the choroid is in uniform contact. The choroid consists mainly of a network of bloodvessels, the interstices of which are more or less occupied by dark pigment, and it forms a ground of a bright red, dark red, or even chocolate color, according to the depth and richness of its pigmentation. The sclerotic and the choroid are both perforated to permit the passage of the optic nerve into the eye; but the foramen in the sclerotic is closed by a firm fibrous membrane, the lamina cribrosa, which is pierced by numerous small openings for the nerve tubules. The choroidal opening is rather larger than that in the sclerotic, and is a simple hole. The nerve fibres leave their sheaths at the lamina cribrosa, pass through the choroidal foramen in a single bundle, and bend over its edges to spread in all directions over the fundus, and to form the anterior, fibrous, or conducting layer of the retina. The other layers of the retina lie behind the fibrous layer, between it and the choroid, and the percipient layer, the layer of rods and cones, or Jacob's membrane, is the deepest of all.

The central artery of the retina enters the eye among the nerve bundles, divides usually into two main branches, and then ramifies over the fundus in a widely branching arborescent manner, lying always in the fibrous layer of the retina. The capillaries and veins occupy the same position.

Now if we for the present regard the choroid merely as an opaque, dull-red background, and if we remember that nervous tissue is very highly translucent, and, in their layers, transparent, we shall almost be able to describe, without having seen them, the appearances that the optic nerve and retina must present. When looking directly at the nerve, we shall be able to see down to the lamina cribrosa, and, in the centre of the nerve, where the separation of the fibres towards the margin leaves the lamina most exposed, we shall often see a sort of mottling or stippling, due to the difference in color between the fibrous tissue of the lamina itself and the nerve tubules which occupy its openings. The nerve bundles, after passing through the lamina, have a faint color, partly due to their capillary circulation, but this is not sufficient to conceal even the finest branches of the central artery. It serves, however, to show by contrast the edge of the sclerotic foramen, which appears as a distinct white line, lying between the proper nerve tissue and the margin of the somewhat larger opening in the choroid. Here, however, as the visible portion of the sclerotic is covered by a rather thick stratum of nerve fibres bending over it to pass into the retina, it does not exhibit the bright or glistening whiteness which is peculiar to it when fully exposed. Next to this sclerotic boundary comes the choroidal boundary, a sharply cut hole in the opaque choroid, its outline a little softened by being seen through the retinal fibres. The choroid at this point is often more richly pigmented than elsewhere, so as to present next to the nerve entrance a dark or black annulus or crescent.

The optic nerve, then, at its point of entrance into the eye, or, as it is generally called, the optic disc, presents a generally circular outline, margined by the dark choroid. Within this dark margin is a faint or veiled white line, the edge of the sclerotic foramen. Within this is the annulus of nerve fibres—generally faintly roseate in color; and within the annulus a whiter centre, showing more or less indication of the lamina cribrosa. From this whiter centre emerge the vessels, seen in bold relief against the disc, and less conspicuous, but still plainly visible, on the darker background of the surrounding choroid. The arteries are somewhat smaller and brighter than their accompanying veins. Both ramify in the same arborescent manner, and can be traced over the choroid until their branches become too fine to be readily visible.

The general appearances described above are subject to considerable variations within the limits of health. In the first place, the apparent color of the optic disc is very much an effect of contrast; so that a disc which would appear roseate against the scantily pigmented choroid of a fair person, would appear almost white if thrown up by a darker background. In the next place, the arrangement of the nerve elements is often unsymmetrical. The vessels may emerge at one side instead of in the centre. The nerve fibres, instead of spreading out on every side in a gentle curve, like that of a convolvulus flower, may turn abruptly at right angles, and thus leave no central opening through which the lamina cribrosa may be seen. Or they may be massed together on one side of the disc, leaving the lamina exposed to view on the other. When there is no real want of symmetry, an apparent want may depend upon the nerve piercing the coats of the eyeball with unusual obliquity, or even upon its being seen obliquely by the spectator; and in either way a portion of its margin may be obscured. Such variations, especially as they are almost always bilateral, are not calculated to perplex anyone who will think about what he sees. Upon those who will not do this, precepts are thrown away; and they must be left to discover mare's nests at their own good pleasure.

In many eyes, and, indeed, in most dark eyes, we see that the choroid, immediately around the disc, is veiled by the faintest opalescent film. This is the retina. Its degree of visibility depends mainly upon the darkness of the background, and in light eyes it is often wholly invisible. It is most conspicuous immediately around the disc, because its fibrous layer is thicker in this situation than elsewhere.

A little on the outer side of the optic disc, at a point nearly opposite the centre of the cornea, the retina presents a depression, the yellow spot of Soemmering. This spot is the seat of the most acute vision, and here the superficial layers of the retina are wanting. The nerve fibres curve round the yellow spot, and the vessels follow a similar course. The thinness and increased transparency of the retina render the choroidal pigment more conspicuous here than elsewhere, and hence the yellow spot, as seen with the ophthalmoscope, always presents a darker color than its immediate environment.

The retinal veins on the optic disc sometimes present a visible pulsation; and, where they do not do so, the venous pulse may be produced by slight pressure with the finger. A visible arterial pulse, on the contrary, is always a morbid phenomena. Both veins and arteries, in their larger branches, and under good illumination, appear to be marked by a central white line, running in the direction of the vessel—a result of reflection from the most elevated portion of the cylinder.

If we turn now to the consideration of the choroidal background, we must first think of its structure. The vessels which form the choroid are arranged in layers, increasing in fineness as they approach the anterior surface. The outermost layer, next the sclerotic, consists largely of the so-called vortices, or star-shaped groups of veins, each group meeting in a common centre. Contiguous veins, approaching such a centre, depart but little from parallelism, and are separated by interspaces about their own width, usually containing much pigment. In front of this layer is one of finer vessels, still arranged in a direction of general parallelism, or at most of very restricted arborescence, when contrasted with that of the vessels of the retina. In front of this finer layer is one composed of capillaries too fine to be individually visible; and in front of the capillaries there is a stratum of epithelial cells, each cell usually containing pigment granules. This epithelial layer lies immediately behind the retina, and is seen through it. We may easily use such a magnifying power as to obtain from the cells a certain granular aspect. If the cells are loaded with pigment, they are rendered completely opaque, and we see nothing beyond them. This may be regarded as the typical condition of the eyes of dark people, and it affords a uniform dark oı dull-red background, on which the retinal vessels are seen to ramify, and which may be resolved by high magnifying powers into a finely granular surface.

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Address

ON

THE ADVANCES IN OBSTETRIC MEDICINE DURING THE LAST TWELVE YEARS.

Delivered at the Annual Meeting of the Obstetrical Society, January 5th. 1871,

By Graily Hewitt, M.D., F.R.C.P.

Gentlemen,—The present appears to me an appropriate occasion for reviewing the advances in obstetric medicine during the last twelve years. I think it can be shown that this Society has, so far, most completely fulfilled its objects in respect to the advances it has made and the improvements it has introduced in the practice of obstetrics. Embraceing the whole field of obstetric work, my observations must necessarily be brief, and, as regards particular subjects, of an extremely summary character. Necessarily, also, my individual judgment on the progress made in special departments or subjects is simply an individual judgment. I must ask, therefore, for your kind indulgence while I endeavor to portray what appear to me to be some of the more important advances in our science obtained during these twelve years of the Society's existence.

Much valuable information concerning the statistics of midwifery practice has been afforded by the papers of Mr. Bailey, Mr. Dunn, Mr. Mitchell, and Dr. Granville; while new and curious facts concerning the practice of midwifery in our Indian possessions have been furnished by the papers of Dr. Jackson and Dr. Shortt.

The general features of labour, and its management, have been the subject of several thoughtful essays. Dr. Hick's paper on the condition of the uterus in obstructed labour will assist the practitioner in determining more accurately when and how to give assistance. Women perish as a consequence of labour more often from want of appreciation on the part of the attendant of the actual condition present than from any want of skill on his part.

Then we have had a philosophical inquiry as to the seat of the pain of labour by Dr. Sansom; a paper by Dr. Eastlake enforcing the practice of delivery of the placenta by means of external pressure —a real advance in practice; also a valuable and interesting account of the manner in which double monsters are usually delivered, by Dr. Playfair.

That valuable anæsthetic, chloroform, was introduced by our lamented colleague Sir J. Simpson before this Society was founded, but the proper and safe limitations to its use in midwifery practice have been discussed by us on several occasions. We have come—some of us, at all events—to recognise the fact that chloroform has a tendency to make labour "lingering," that it sometimes enfeebles the uterus, and may thus cause hæmorrhage. This tendency it is proposed to do away with by diluting the chloroform by mixture of alcohol or other vapors, or by accurate mixture with air. Dr. Sansom has pointed out the great liability to the inhalation of poisonously high percentages of chloroform at high temperatures unless proper care be exercised. Mr. Ellis has given us new inhalers for effecting such mixtures. Dr. Kidd has given us, and has been the means of eliciting, much valuble information. The general conclusion I take to be, that in ordinary midwifery practice the anæsthetic should be diluted, that it should not be given to produce the full effect, and that in all cases rather excessive precautions against hæmorrhage are required when chloroform is given.

The vexed question as to the influence of ergot on the fœtus has been discussed in an elaborate paper by Dr. Uvedale West.

The very important subject of distortion of the pelvis—a condition so full of danger to mother and child—has frequently incidentally been before us. Since the formation of this Society, a new form of distortion has been added to the previous list—the spondylolisthesis, or projection forwards of the last lumbar vertebra from caries or other disease of the bones beneath; first described in 1853 by Kilian, of Bonn. Dr. Barnes has contributed in our Transactions an exhaustive paper on this new and interesting deformity, detailing the particulars of thirteen cases, The disease is rare; but we shall probably hear of it more commonly now attention has been directed to its existence.

Of the great obstetric operations, most of which we can happily designate as conservative ones, the forceps is the chief and foremost. What has this Society done to further the use and efficiency of this instrument? In the first place, this Society has on several occasions expressed itself strongly on the great impolicy of postponing the employment of the forceps when the labour is not a progressive one, and when it is delayed. We have endorsed the opinion put forward by Dr. Tyler Smith in a very able paper, that the head ought not to rest on the perineum some hours before the instrument is applied; we in the same way repudiate the old maxim that it is necessary to feel the ears before using the instrument; we no longer insist on the os uteri being fully dilated in order to employ it; we do not consider the entrance of the blades into the uterus as prejudicial; nor do we object to the employment of slight degrees of pressure to the fœtal head when necessary. These various questions require the use of discrimination on the part of the attendant in particular cases; but the question is generally one of mechanics. In Dr. Tyler Smith's paper, and in a very forcible one by Mr. Harper, the advisability of more frequently useing this life-saving instrument is most strenuously insisted on. Unquestionably, however, this Society has still work to do in urging this point on the attention of the profession.

Then, with reference to the *form* of the forceps, something must be said. The tendency has been, in this country at least, to employ an instrument too short in the blades. On the Continent they have not fallen into this error. Attention has been directed to this point in this Society; and our noble exhibition of obstetrical instruments has contributed facts of moment. There can be no doubt that the forceps should have tolerably long blades, and that it should have handles giving the operater some little power.

The last twelve years have seen much that is new in the operation of turning. The true value and place of this great operation has been more accurately defined. Our esteemed honorary Fellow, Dr. McClintock, discussed the matter in a very able paper. The question between the high forceps operation and the operation of turning is hard to determine in a general way, and it is quite evident, that the individual difficulty will always have to determine the individual choice. Respecting the method of performing this operation, Dr. Braxton Hicks has introduced a novelty and a great improvement. It is hardly necessary for me to state to you that the bi-manuel method of turning, which we owe to Dr. Hicks, enables us to turn in many cases where it would be otherwise difficult or impossible. It is a real addition to our armamentarium. The new operation will not, of course, supersede the old one, which must still be practised in many cases.

Passing for a moment now to the destructive operations, intended, however, to save the mother, we come to the methods of diminishing the size of the fœtal head. Here much has been done in our Society in the way of improvement. Dr. Braxton Hicks has revived and developed a fact really stated by Hull and Burns many years ago, but lost sight of till now—viz, that the fœtal head can be brought through a very small aperture, when tilted so that the face shall be first presented at the aperture, the cranial bones and the lower jaw being first removed. The practical application of this fact will aid extraction in certain otherwise very difficult cases. Another novelty in the same direction is the suggestion of Dr. Barnes's to cut the head into segments by means of a very strong wire, worked by an adaptation of the écraseur mechanism.

Next we come to the operation of cephalotripsy. Before this Society was founded the cephalotribe was hardly known of at all in this country. We have now, in the instrument of Dr. Braxton Hicks, a most portable and practical instrument. Dr. Barnes, Dr. Matthews Duncan, and Dr. Kidd, of Dublin, may be mentioned among those who have in this Society done much to develop the use of the instrument. Many cases admit of the extremely advantageous employment of this method of delivery, with the effect of saving the mother from possible lacerations in otherwise difficult craniotomy cases; in fact, there is a great deal to be done with it. Short of this operation, we have had a much improved craniotomy forceps from Dr. Barnes and Dr. Hall Davis.

The vexed question of the Cæsarean section has come before us on as many as eight occasions. Dr. Greenhalgh has argued strongly in favor of the operation. Dr. Braxton Hicks, Mr. Bryant, Dr. Swayne, Dr. Newman, and Dr. Roberts have brought cases before us, all of which offer data of importance. It must be said, I think, that the numerous improvements, which I have already adverted to, in the method of extracting the fœtus, very much lessen the frequency of the necessity for recourse to this severe operation, and that expert operators will in future succeed in extracting the fœtus in cases formerly incapable of being thus treated. On the other hand, the improvements in severe abdominal operations, such as ovariotomy, contribute in some degree to lessen the danger of the Cæsarean section. The general current of English thought is, and has generally been, adverse to the Cæsarean section; but yet we cannot afford to put it on one side. Cases will now and then occur calling for it, and we must be prepared accordingly. Dr. Barnes has recently suggested an improved method of suture for the uterine wound.

The induction of premature labour is an operation which has engaged our attention on many occasions. We have frequently discussed the relation which this child-saving operation bears to other methods of delivery. It must be stated, I think, at the present time, that we are not yet decided as to what is actually the best method of inducing premature labour. There is a very remarkable paper in the Transactions, by Professor Lazarewitch, of Charkov, in which twelve cases are related wherein the method of injecting water to the fundus of the uterus was employed; and no one can read the account of these cases without being struck with the safety and completeness with which labour was induced. Then we have the method of inducing premature labour now known as Dr. Barnes's method. This is unquestionably an exceedingly good, and it may be characterised as being the best, method we have in our possession for bringing labour to an end within a certain definite time. Looking, however, to the great difficulty of conducting the labour through its various periods safely to the child, which is an important consideration in most of these cases, it must, I think, be stated that we have not yet quite decided as to what is the best method; and there are still some, including myself, who think very highly indeed of the method of simple puncture of the membranes.

The curious subject of missed labour has been brought before us by Dr. Wynn Williams, who has detailed additional cases.

Every practical physician of the present day attaches great value to the thermometer. It was very important that we should know what changes the temperature of the body underwent after the occurrence of parturition, in order that we might have some data to go upon in estimating the value of changes of temperature. That information has been given to us in a valuable paper on puerperal temperatures by Mr. Squire.

The diet which is proper during the puerperal state is a subject which was brought before us in a very forcible manner by a late president of this Society, Dr. Oldham. And, so far as I have been able to see, Dr. Oldham's statements have produced a great effect in the practice of the profession in this respect. Dr. Oldham contended strongly for the adoption of a more liberal diet after labour. This is a matter which must be regarded as of great importance.

A new term in reference to hæmorrhage has been added to medical obstetric literature since the formation of this Society. We now recognise the existence of a form termed "concealed accidental hæmorrhage,"—hæmorrhage, that is to say, occurring concealed in the uterus itself, capable of imperilling the patient without necessarily causing a great external loss,—a very dangerous complication of labour. This subject was brought before the Society, and several cases were detailed, by Dr. Hicks. This is an actual addition to our knowledge.

I next allude to what has been put forward by this Society on the subject of placenta prævia. In a very interesting paper, Dr. Greenhalgh laid down, for the first time publicly, so far as I am aware, this proposition, that in a case of placenta prævia the patient should not be allowed to go on to the full term of pregnancy; that a woman with placenta prævia is constantly in danger of losing her life; and that the practitioner should exercise a special control over that patient, if he does not think it advisable to induce the continuance of the labour at the time the difficulty is first observed. With reference to the methods of treatment of this complication, I think that the general current of feeling in this Society is in favor of an eclectic method. I imagine there are few gentlemen of position in this Society who would tie themselves to any one procedure in reference to placenta prævia. On the whole, I think the Society has expressed itself in favor of rupturing the membranes, combined with turning, as generally the best procedure. The partial separation of the placenta in certain cases, which has been suggested by Dr. Barnes, doubtless will be valuable with the limitation which he himself describes.

With reference to post-partum hæmorrhage, I have little doubt that, if the treatment of the third stage of labour previously alluded to were generally practised and insisted upon, we should have very slight occasion to treat post-partum hæmorrhage at all. As to the actual treatment of post-partum hæmorrhage, an important addition has been made to our practice in the injection of perchloride of iron into the uterus in cases where other methods fail. This we owe to Dr. Barnes. It may be said, I think, with reference to this subject, that we have not yet determined that this remedy is entirely devoid of danger. I mention it therefore with this slight qualification. Certainly the most important thing we have to do is to prevent the patient from actually dying under our hands from hæmorrhage; but, in adopting any remedy under such circumstances, we have to consider also the possible secondary effects of this treatment. I do not state this, however, with any wish to discourage the use of the remedy.

With reference to transfusion, a remedy which we have at hand in certain cases where other methods fail, we have had valulable papers from Dr. Waller and Dr. Aveling. It seems that the best method of performing this operation has not yet been decided, although the matter has undergone discussion over and over again. It must be admitted that it is a remedy which is the only one capable of resuscitating a patient in certain cases; and it is a remedy which must always be considered in alluding to the subject of the treatment of hæmorrhage. It has saved many patients, and will probably save many more. The difficulties in deciding on the adoption of the operation are always very great.

It has been pointed out that adhesions of the uterus on its peritoneal surface may give rise to post-partum hæmorrhage, by preventing the contraction of the uterus. Cases have been brought before this Society proving pathologically the existence of this condition.

With reference to rupture of the uterus, we have had a very valuable paper from Dr. Radford, a well-known contributor. One of the chief values of this paper appears to me to be this, that it proves conclusively that the two chief causes of rupture of the uterus are, a slightly contracted pelvic brim, and a rather long labour. It is not cases of severe deformity in which rupture occurs, but a case of slight pelvic deformity, and in which the labour has been rather more prolonged than usual. Other causes have been mention as inducing rupture of the uterus, but they are not so certainly causes of this grave accident as those I have mentioned.

With reference to inversion of the uterus, we have had a paper from Dr. Tyler Smith alluding more particularly to the mechanism of its occurrence. From the same gentleman we have also had a new explanation of retroflection of the gravid uterus. Dr. Tyler Smith has pointed out that, in the cases in which the gravid uterus is retroflexed, the retroflexion has generally existed previous to the occurrence of pregnancy.

On the subject of embolism and thrombosis we have had some interesting papers from Dr. Barnes, Mr. Wade, and Dr. Playfair Women are liable to suddenly die during the first two or three weeks after labour; and the pathological explanation is a very interesting one. The conclusion, as it seems to me, to be drawn from the cases brought before this Society, is the duty of preventing such an occurrence; and it would certainly appear that the condition which has been most usually at fault has been a general weakness of the system, making it, therefore, extremely advisable, as prophylactic, to sustain the strength of the lying-in woman in every possible way.

On the subject of phlegmasia dolens we have had three valuable papers from Dr. Tilbury Fox, in which the matter is fully considered.

With regard to puerperal fever, which has been so fruitful of discussion in obstetric history, we have had many papers from Dr. Tilbury Fox, Mr. Mitchell, Dr. Beck, Dr. Hicks, Dr. Tyler Smith, and myself. Dr. Tilbury Fox has pointed out to us the close alliance between the occurrence of erysipelas in lying-in hospitals and puerperal fever, a connexion which was demonstrated by the figures he brought before us. Dr. Beck has pointed out the pathological fact of the uterus being found very large in cases where death occurred from puerperal fever. Dr. Hicks has developed the relation which scarlet fever bears to puerperal fever, in private practice especially, with the effect of showing the great frequency of the connexion between these two. Next, a paper was brought before us containg an account of the experience of the Nightingale ward in King's College Hospital, which has demonstrated, if it required demonstration, the great danger of placing puerperal patients in contiguity with other patients, especially those suffering from surgical affections. Dr. Tyler Smith has brought before us a case in which he injected ammonia into the blood in the treatment of puerperal fever. With reference to the treatment of puerperal fever in general, I think it has come out, from the discussions that have occurred in this Society, that, whatever may be necessary by way of prophylaxis, it is a disease in which copious stimulation is most important, if the patient is to recover.

We come next to the subject of puerperal convulsions. In this department Dr. Hicks has given us a novel pathological fact—namely, that in certain cases convulsions are apparently a prelude to the albuminuria. This is a matter which requires much further investigation. Dr. Hall Davis has given us a most valuable paper, containing the whole of his experience of puerperal convulsions, treated most successfully on what may be called the eclectic method.

Chorea in pregnancy has formed the subject of a valuable paper by Dr. Barnes. The result was that, of the cases collected, 39 patients recovered and 17 died. Dr. Barnes, on the whole, discountenances the theory which has been put forward of late years with reference to the etiology of chorea—namely, the embolic theory; according to which it is held that the disease arises from the transportation of certain minute particles of fibrin from the valves of the heart to certain cerebral centres.

Eighteen cases of extra-uterine pregnancy have been recorded. In one or two of these the patients narrowly escaped having an operation performed on them, which might possibly have saved their lives—namely, opening the abdomen and arresting the hæmorrhage by surgical means. The diagnosis in these cases is so difficult that it will perhaps be still some little time before the operation is performed.

With reference to abortions, Dr. Priestley has contributed a paper in which he has urged on the Society the desirability of almost invariably endeavoring to remove the secundines instead of leaving them in the uterus; arguing that this is safer, on the whole, even in cases where the removal is somewhat difficult.

We next come, gentlemen, to the consideration of what has been done in the department of the diseases peculiar to women. The various subjects pertaining to this have been discussed at great length and with great frequency in this Society, and various opinions have been expressed with reference to points many of which must be considered as being still debatable.

On dysmenorrhœa, on flexions of the uterus, on inflammation of the uterus, and on irritable uterus we have had papers read from Dr. Marion Sims, Dr. Greenhalgh, Dr. Barnes, Dr. Tilt, Dr. Meadows, and myself. Dr. Savage and others have also contributed valuable observations. It is certain that of late years great advances have been made in our knowledge of what may be termed the mechanical diseases of the uterus, and in the relation which exists between these mechanical diseases and functional diseases, such as inflammation. I would not presume on this occasion to speak dogmatically on the subject, holding as I do views which are not quite shared in by gentlemen very eminent indeed in this Society; but I think we have come to recognise this, that the uterus is liable to be affected with certain important alterations in regard to its shape—alterations capable of exercising a very important influence upon other conditions which, perhaps, some might consider even more important—namely, the inflammations of the uterus. With reference to the subject of dysmenorrhœa, I think it may be said that an operation which some time since was very much vaunted for the cure of this condition has come to be rather discountenanced—I mean the making of large incisions into the uterus. I cannot say more, however, on this subject. The discussions which have taken place may be read with great advantage by anyone who chooses to inquire into it.

On the subject of ovarian tumours we have passed over a great deal of ground since the Society was first formed, twelve years ago. We have had as many as twenty-three papers or contributions of various kinds relating to ovarian tumours. Although ovariotomy was not first practised in this country, yet it has come to be practised very largely; and the operation has afforded an instance of the fact, that when the British mind does take up a thing it takes it up very efficiently indeed. The success of this great operation has, in fact, obtained for English surgeons and physicians an extreme notoriety throughout the civilised globe. The operation is now performed in Stockholm, it is performed in Germany, and it has been performed in Australia and in India with success. This Society has unquestionably done very much indeed to settle various points connected with the performance of this operation.

On fibroid tumours of the uterus and polypi of the uterus we have had a multitude of papers, discussing various points in pathology connected with this subject, and describing various methods of removing these tumours; and many ingenious appliances have been brought forward for performing the operations. At present, however, I suppose it can hardly be said that we have discovered how to prevent the formation of these curious growths in the uterus. We can control their development in certain cases, but, unless we can act upon them surgically and mechanically remove them, we cannot be absolutely certain of being able to deal with them satisfactorily.

With regard to cancer of the uterus we can say, unfortunately, very little, Dr. Wynn Williams and Dr. Routh have brought before us cases in which bromine has been used as a remedial agent, and unquestionably with a good result in many cases which have been detailed to us. But I am afraid we are not yet in a position to say that we have a remedy which will cure the disease.

On the subject of retention of the menses, and the operation for relieving this condition, we have had some very interesting papers; also on the subject of vaginal operations, as well as some on the operations for the relief of prolapse of the uterus.

We come, in the next place, to the subject of the diseases of children. The time of the Society was so much engrossed otherwise in the early part of its career that it must be confessed that this subject was a little neglected. We had, however, a most interesting paper some years ago from Dr. Little, proving the connexion between difficulties in labour and the production of certain impairments of motor power in the limbs. This paper has attracted comparatively little attention.

Mr. Squire has given us a good account of the normal temperature of new-born children—very valuable indeed, from the same point of view as the observation of the temperature of the mothers.

Dr. Tilbury Fox, in a paper on the etiology of rickets, propounded a theory in reference to the production of this disease deserving of a more attentive consideration and extended investigation than it has hitherto received. Dr. Fox believes that in cases of rickets the child has been suckled by a woman who has menstruated while suckling her infant. This is a question which should be solved by investigation and further observation.

On the subject of malformations we have had before us as many as fifty cases, specimens and drawings of various kinds, and the Society has collected valuable material on the subject.

In the next place, the Society has, on the suggestion of Dr. Farr, entered on a serious and extensive investigation into the subject of infant mortality in England, its causes and prevention. That work it has been engaged on during the last two years, and the general results of the investigation were communicated to you at the last meeting. Part of the result of the work of the Committee who conducted the investigation is the production of rules for the general management of infants, now produced. These rules have been very carefully drawn up and revised at several meetings of the Committee and Council, and are now before you in a complete form. They will speedily be circulated by the Society as widely as possible. Following other recommendations of the Committee, attempts will now be made to procure better enactments in reference to infanticide, to the registration of midwives, and to enforce their better education.

We have had a large number of papers before us on miscellaneous subjects, which it is difficult to bring into the foregoing list of the work of this Society. We have had upwards of fifty instruments of various kinds exhibited at our meetings, to say nothing of the well-known great public exhibition of instruments some time since held at the Royal College of Physicians.

I say nothing of the indirect effect which this Society has produced upon the profession in reference to obstetric education. Many gentlemen have, through this Society, received what has been virtually their obstetric education.

I now, gentlemen, take leave of you as your President, thanking you very cordially for the manner in which you have assisted me in performing my duties, and wishing the Society an equally prosperous career in the future.

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Clinical Lecture
ON
FIBRO-PLASTIC TUMOUR OF THE AXILLA.

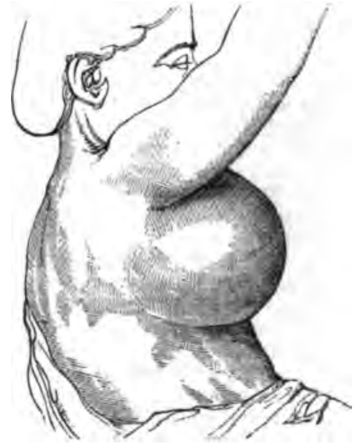
Delivered at University College Hospital,

By Professor Erichsen,

Senior Surgeon to the Hospital:
Holme Professor of Clinical Surgery.

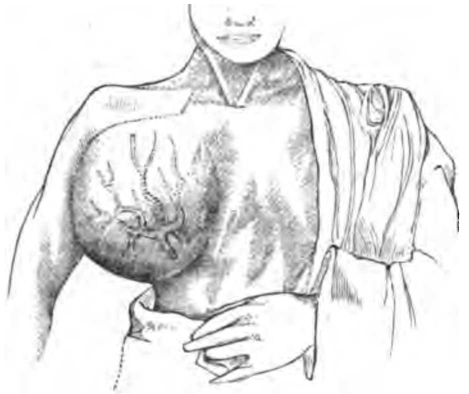
Gentlemen,—I wish to-day to direct your attention to a very remarkable case of axillary and mammary tumour that has lately been operated upon, and which presents points of interest from its size, its situation, and some circumstances attending the operation. The case is as follows:—

R. J. H——, aged forty-nine, housewife; has been married twenty-five years, and has had eight children. Of these, six are alive and well; the other two are dead. The patient says that she was quite well up to sixteen years ago, when she had two abscesses in the right breast. She went to the Bedford Infirmary as an in-patient, and left cured of the abscesses; but before she left the infirmary the surgeons told her that there was something the matter with the right shoulder. The patient herself could not notice anything wrong with it. The surgeons at the infirmary told her that they thought that an indolent tumour was forming in the region of the shoulder. Four years after she left the infirmary she began to feel some tightness under the right shoulder (in the axilla). The patient says that there was no swelling to be seen or felt. About five years ago she noticed a small lump between the axilla and the breast (very near where one of the abscesses had been). This tumour began to increase, and has been doing so ever since, and during the last eight months it has increased rapidly. She had a blow on the shoulder when she was seven years of age. Has never had pain of any kind in the tumour itself. It has never been tender. It feels, however, tense and heavy, and as if it were ready to burst. About three years ago she began to feel pain in the right arm, the pain being of a severe, tingling kind (pins and needles), and sometimes spasm of the muscles. The pain and spasm are confined to the inner side of the arm, and extend only from the axilla to the elbow; they are much relieved by grasping the arm firmly with the left hand. The pain is only momentary, but has much increased in frequency and severity of late. The hand and fingers always feel numb and dead (pins and needles), more especially the thumb and forefinger. The right arm and forearm are larger than the left. Patient suffers almost continually from headache of the right side; the sight of the right eye is defective; and the breathing is very difficult at times. None of her relatives have ever had tumours of any kind, except two cousins, who died of "scrofula." Patient herself has suffered from abscesses occasionally. When the pain in the arm first made its appearance she came to this



hospital, and was told that it was too far gone for removal. Patient still continues to menstruate, but not regularly. About two months ago she ran a needle accidentally into the tumour; this gave her no pain, and nothing came out through the puncture.

Description of the tumour.—The tumour occupies the upper part of the axilla, extending forwards almost to the sternum, displacing the nipple forwards to the edge of that bone, and backwards beneath the scapula. In front it reaches up close to the clavicle; below it reaches to the sixth rib. Large veins ramify over the surface of the tumour. The skin is freely movable over all parts of the growth. The surface is tolerably uniform, not lobulated. The scapula is drawn forwards, apparently by the tumour. The side of the thorax is flattened in. The arm cannot be brought to the side. The humerus is freely movable, having no connexion with the tumour. On moving the tumour the scapula is found to move also. The tumour moves with the scapula up and down over the ribs. It does not appear to be connected with the ribs. The axillary artery can be distinctly traced by its pulsation coursing over the front of the upper part of the tumour, and giving off a descending branch. The pulsation can even be seen.



Oct. 28th.—Mr. Erichsen remarked that he felt some deep fluctuation on the front of the tumour, about its middle.

Nov. 2nd.—Mr. Erichsen punctured the tumour with trocar and canula, and two ounces and a quarter of fluid escaped. The fluid is clear, of dark-yellow color. It gives a copious precipitate on boiling, and also on the addition of nitrate of silver. Its specific gravity is 1020, and it is slightly alkaline. The microscope shows nothing but a few blood-corpuscles and epithelial scales.

3rd.—Since the operation of tapping, patient has lost all the numbness (pins and needles) which has existed in hand and fingers for last three years.

4th.—Complains of headache and want of appetite. To take two grains of pill 5 at bedtime.

7th.—She says the tumour is becoming larger. She is not afraid of the operation. Mr. Erichsen determined to operate.

9th.—She is well and cheerful. Mr. Erichsen operated in the afternoon, removing the tumour. The patient has since done well.

Now before proceeding to describe the operation let us pause here and consider the diagnosis of the tumour.

Diagnosis.—This part of the case is exceedingly interesting from two points of view: first, so far as the diagnosis of the nature of the tumour is concerned; second, so far as the diagnosis of the anatomical relations and connexions of the tumour is concerned. Because on the proper determination of these points the question of the propriety of operation depended.

1st. It was evident at first sight that the tumour was not malignant, for the following reasons. It had existed for many years without constitutional contamination. There was no enlargement of the glands in its vicinity. The skin was unconnected with it, and was not infiltrated. The patient's health was good. We set aside, therefore, the question of malignancy. But, if not malignant, what is it? This question is much more difficult to answer. It is not a question of pure pathological interest, for some of the steps of the operation depended on it. Is it enchondroma, or some variety of fibroid tumour? Had it been enchondroma, the great probability was that it sprang from and was connected with bone. If fibroid, it probably was unconnected with bone by pathological relations, however intimately connected with it anatomically. We were for some time in doubt on this point. One day I thought I felt deep fluctuation. I made an exploratory puncture, and drew out some cystic fluid. This was conclusive, to my mind, that it was not enchondroma. Fluid is never found in enchondroma, unless this is in a state of disintegration. And this fluid was not the result of the internal disintegration of the tumour. Therefore it was evident that it was a fibro-cystic tumour of considerable bulk. Without going further in the diagnosis, I satisfied myself that it was not enchondroma. So far the ground was clear.

2nd. The next point, very important, was the anatomical connexion of the tumour; for it was near important parts. There were two points especially to which we had to direct our attention: —First, its connexion or not with bone; second, its connexion with bloodvessels.

There were three possible bones from which it might have grown, or with which it might be connected: the clavicle, one of the upper ribs, or the scapula.—*Clavicle:* It was evident from the cleanness of its outline, and from its mobility on the tumour, that it could not have sprung from this bone.—*Rib:* This point was not so clear. The tumour extended between the clavicle and the upper ribs; so that it was just possible that it might have sprung originally from one of them. This view was a little strengthened by the fact that the axillary vessels had been thrust down three inches by the growth of the tumour. On the other hand, the tumour, though close to the ribs, did not seem to be connected with them, but appeared to be slightly movable over them; so that we hoped for the best. *Scapula:* There was a certain degree of probability in its connexion with this bone. In the minds of some surgeons who had very carefully examined it, this approached a certainty. It was thought that it sprang from the subscapular fossa, and had grown forwards; for the scapula of the right side was drawn considerably forwards in advance of the other scapula. The chest-wall was pressed in on that side. On moving the tumour, the scapula moved with it. All these circumstances tended somewhat to the probability of its being connected with the under surface of the scapula. But, strong as these circumstances might be in some degree, they never influenced me in the consideration of the osseous connexion of this tumour. If it had grown from the scapula, I could not but think it would have perforated so thin a bone, forming a tumour in the back. Probably one of the edges of the scapula would have been involved; but the edges of the scapula felt normal, clear, and defined. I thought the muscles connected with the scapula were strongly put on the stretch, and thus drew the bone forward; occasioning the displacement that was so marked.

The other point of importance to be considered was its connexion with vessels and nerves. On careful examination the subclavian artery could not be felt above the clavicle, this bone being pushed upwards. The axillary artery escaped from beneath the clavicle, at the junction of its inner and middle thirds, and coursed down over the upper part of the tumour, three inches or more below the clavicle. It then ascended on the outer part of the tumour, and entered the arm about the normal level, forming a crescentic arch with the convexity downwards. From this vessel an artery as large as the radial coursed over the outer side of the tumour. On its surface were many large veins opening into the axillary vein. Above the axillary vessels could be felt part at least of the brachial plexus. The parts were much stretched. When the pectoralis major was put on the stretch its edge could be felt running over the upper third of the tumour.

In the absence of any osseous connexion, and the certainty that it was not an enchondroma, there was no reason to hesitate to remove the tumour. Having explained the state of the case to the patient and her husband, and obtained their consent, I proceeded to operate on Wednesday last, November 9th.

Operation.—The first incision commenced at the middle of the axilla, as high as possible, and from thence carried inwards and somewhat downwards an inch and a half below the axillary artery. From the upper part of this another incision was made downwards for six inches along the outer part of the tumour, nearly in the lateral mesial line of the body. I dissected back easily the flap thus formed, and then the pectoral muscle with the axillary vessels and plexus. The anterior and lateral aspects of the tumour were thus exposed, and the more important structures were kept out of the way. Mr. Heath carefully looked to these vessels during the operation; Mr. Hill also ably assisted me. I felt a thick capsule enveloping the tumour. It was composed of muscular tissue condensed and infiltrated with plastic exudation, and was as thick as the hand. The outer and anterior part of this was turned back, and the tumour exposed. This was then separated from its attachments, by the hands chiefly, the knife only being used to divide bands of firm adhesions. Thus the upper end of the tumour was separated from under the clavicle, and drawn down. On dividing the capsule freely, the tumour shelled out from under the scapula and from the ribs easily. On removing the tumour, a portion of the serratus magnus was found adhering to it. There was another piece of this muscle, about as large as the hand, lying loose in the wound, which was then removed. Thirteen vessels were tied, several of which were large veins running into the axillary. The flaps were then secured with silver-wire sutures, and washed with carbolic-acid water.

The patient is going on well. In connexion with her present state, it may be mentioned that the sight of the right eye was impaired before the operation. Since the operation she says that she can see very well with that eye, and this statement is confirmed by the nurses, who say that her sight has certainly improved. This is a very interesting fact; and whether it arose from the removal of the pressure on the veins, or from the relief of some sympathetic influence exercised by the stretching of the nerves on the sight, I will not now stop to discuss, reserving the matter perhaps for a future occasion.

Characters of the tumour on removal.—It had something the shape of a truncated sugar-loaf, broad below, tapering above. It was of a pale rosy tint on the surface. When a section was made through it, we found—1. A large quantity of serum oozed out, not from any distinct cyst, but from a general œdematous condition of the tumour, or possibly from small collections of fluid. 2. The tumour had a peculiar glistening aspect. It varied from an opaque, glistening white, to an opalescent tint, like the hard-boiled white of a plover's egg, through various shades of yellow to patches of brownish or chocolate discoloration, the whole singularly smooth.

It weighed 3¾ lb. after removal, and after the draining away of much serum. What were the true characters of this growth? It was evidently of a simple nature. It would appear is if it were a tumour that had undergone some changes by a process of adhesive inflammatory action going on within it. Mr. Henry Arnott was kind enough to examine the tumour microscopically for me, and he says that the opinion we originally formed of it, from its naked-eye characters, is correct—viz., that it is fibro-plastic; that throughout most of its bulk dense masses of spindle-shaped cells are met with, embedded in a homogeneous stroma, which is fibrillated in parts. These cells traverse the tumour in all directions in a tolerably regular manner, though here and there arranged in disordered groups. There is generally much tendency to formation of fibrous tissue, but only well developed in a very few places.

These are the chief points to which I wish to direct your attention in connexion with this very important and interesting case; but before leaving it, I wish to say a few words to you on the subject of primary tumours in the axilla.

It is of great importance, in considering the subject of primary tumours of the axilla, to bear in mind that these tumours have nothing to do with the mammary gland. This is the fourth simple tumour you have seen me remove this session from the axilla, unconnected with the mammary gland. One of these cases was that of a woman who had a smaller fibro-cellular tumour removed from, the anterior fold of the axilla. She subsequently died suddenly of a fatty heart. Another was a case of ordinary lipoma, or fatty tumour. And about a fortnight before I removed a large tumour from the axilla of a young woman. It was an albuminoid enlargement of the axillary glands, such as is met with in delicate young women. These albuminoid glandular tumours are hard and smooth. They are loose and freely movable; they are moreover nodulated. It had existed probably for some years, slowly growing. On making an incision, and dissecting and enucleating, you find that it is composed of a congeries of enlarged glands, which have undergone albuminoid hypertrophy. It gradually enlarges, is pinkish white, glistening when cut, and infiltrated with albuminoid material.

This is an intrinsic and primary disease of the glands, and has no connection with irritation of the hand or breast. It is primary, not secondary. In these cases iodine has been generally and fruitlessly used to a considerable extent before the case comes to the knife. Are iodine frictions of any use in such cases? I say decidedly, as the result of many years' experience in and out of hospital, that iodine possesses no specific influence whatever over these chronic glandular enlargements; and that any good effect produced by its external use may with equal justice be attributed to the substances with which it is mixed, but above all to the friction that is used;—in fact, that any greasy stimulating material well rubbed in would do as well. In the early days of the employment of iodine it was said that the mamma and testis might be absorbed by it. That fear has long since vanished from the minds of surgeons. It is still often believed that "tumours" may be removed by its inunction. That belief I hold to be equally unfounded.

Clinical Lecture

ON

CHRONIC HYGROMA OF THE BURSA PATELLÆ

Delivered at the Queen's Hospital, Birmingham.

By James F. West, F.R.C.S.,

Senior Surgeon to the Hospital, and Professor of Anatomy in Queen's College.

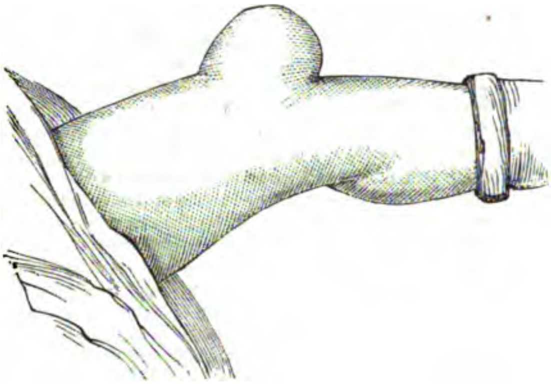
Gentlemen,—The case we shall consider to-day is one of considerable interest, and presents many peculiar features. It not only serves to illustrate a very common condition—housemaid's knee,—and so affords me an opportunity of briefly describing the varieties of that disease and their treatment; but it also enables me to bring under your notice a pathological specimen of great value from its magnitude, and of no little surgical importance from the infrequence of the successful removal of such growths. The term "hygroma" means a hypertrophy of a bursa, whether caused by pressure or by acute or chronic inflammation. It may occur to any synovial bursa, but is most commonly met with in the bursa patellæ, and in that which overlies the olecranon process.

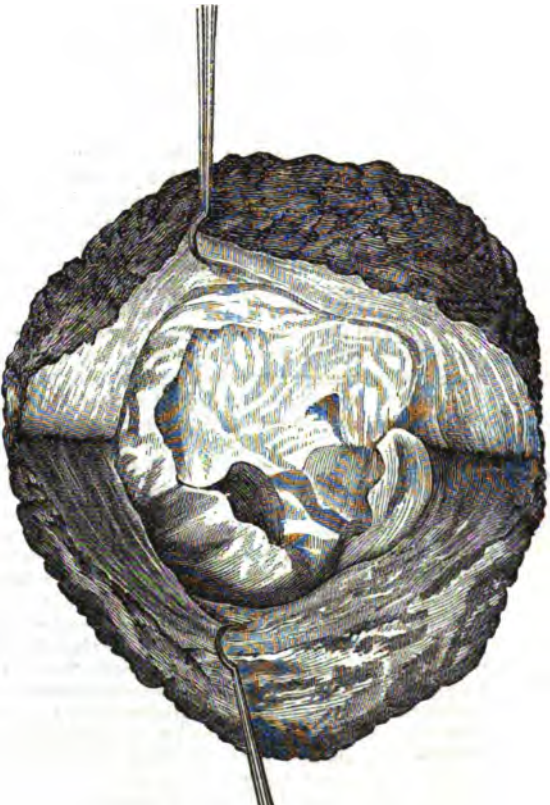
I will read the notes as taken by my dresser, Mr. Hunt, and then notice the chief points of interest which arise out of the case.

Mary H——, aged thirty, housewife, admitted into the Queen's Hospital, under Mr. West, Oct. 27th, 1869.

History.—Eleven years ago she came to Birmingham from the country, and began to work as a charwoman. Whilst following this employment she had to kneel a great deal, and she soon noticed a small swelling about the size of a marble over the front of the left knee. She had no pain in the tumour at first, but it soon got larger and became painful. It has continued increasing up to the present time, and has been very inconvenient to her, especially during the past six months, not only on account of its size, but because of the pain it gives her to kneel. She is a very healthy woman in all respects except this, and she has never had any illness in her life. She cannot assign any cause for the disease, never having received any blow or injury to the knee.

State on admission.—There is a large, globular, semi-solid swelling over the front of the left knee, in the situation of the bursa patellæ. The tumour slightly movable in all directions; but the skin is adherent to it. There is no increased temperature of body, and no emaciation. She complains but little of pain in the tumour, except when she is kneeling. The following are its dimensions:—





[*Note.*—These drawings were made by one of the students, Mr. Priestley Smith, who is now a dresser in the hospital for the sick and wounded at Bingen.]

Vertical measurement, 7 in.; transverse ditto, 8½ in.; circumference at base, 12 in.

Mr. West, judging the case to be one of hygroma, determined to relieve the patient by operation. On Nov. 1st she was placed under the influence of chloroform. A trocar was first thrust into the swelling, partly to ascertain the nature of its contents, and partly to reduce its bulk. Only a small quantity of yellow opaque fluid escaped; and Mr. West then proceeded to remove the tumour. A vertical incision was made over the whole of the tumour, and it was carefully dissected out. It was found to be very adherent to the patella, and to have abundant vascular connexions with the surrounding tissues. The wound was brought together with silver sutures, and secured by pads of lint and a bandage, a well-padded straight splint being applied down the back of the leg to immobilise the knee-joint. The patient was removed to bed, and the knee kept cool by irrigation with cold water. The tumour weighed 8 oz., and was found to have walls of fibrous tissue half an inch in thickness, enclosing masses of lobulated structure, of yellowish color, and friable consistence. Under the microscope large quantities of blood-corpuscles were seen (some of them showing the characteristic biconcave contour), which speedily formed *rouleaux;* a few exudation corpuscles or compound granule cells, and numerous plates of cholesterine.

Nov. 4th.—The wound is rather painful. The two lower stitches were removed, and a small quantity of bloody serum escaped. She was ordered to have hot lead-and-opium lotion applied.

6th.—Is much better. The pain was greatly relieved by the lotion. The wound is nearly united. Pulse 88.

7th.—The other stitches were removed. The wound has united throughout its entire length with the exception of half an inch at the lower part.

11th.—Is doing well, but is so restless that the straight splint cannot be kept on. A gutta-percha splint was applied to the back of the thigh and leg, and the knee dressed as before with lead-and-opium lotion.

14th.—The gutta-percha splint is still kept on. There is still considerable discharge from the lower part of the wound, which still remains open.

18th.—Is much better. The wound is still discharging freely. The knee to be strapped with soap plaster.

24th.—Wound is quite healed. Patient has been up to-day, and can walk a little; she has, however, still got the splint on.

26th.—Discharged to-day, cured.

She was readmitted into the hospital three days after. Instead of resting the leg as much as possible, as she had been ordered, she had walked about a great deal, and had actually knelt down to scour the floor. The consequence of this indiscretion was, that she suffered severe pain in the left knee. There was slight swelling over the knee-cap, and the adjacent parts were red, hot, and painful. A gutta-percha splint was applied at the back of the thigh and leg, and hot lead-and-opium solution applied. Rest in bed was also ordered.

Dec. 10th.—The patient has lain in bed since her admission on the 29th ult., and is now much better, and free from all pain and inflammation about the knee. The splint was taken off, and she was discharged to-day.

The cause of this patient's malady is obvious—habitual pressure on the bursa patellæ in following her occupation as a charwomen. This is the class of persons who most suffer from it in this country. In Roman Catholic countries the practice of religious people of kneeling on the stone floors of cathedrals and convents renders the disease common to all classes. In the miners of this district we often see the same condition in the olecranon bursa, produced from their habit of leaning on the elbows while at work.

These tumours sometimes grow rapidly, and then they are extremely liable, from slight injury, or from the influence of cold, to take on acute inflammation. The knee soon becomes tender and hot, and the thick skin over it assumes an erysipelatous blush, the redness often extending as high as the condyles of the femur, and as low as the tubercle of the tibia. The swelling is, however, entirely different from that of synovitis; it is denser and more brawny, and it is evidently superficial. The patella is felt in its normal situation, and there is none of that obvious distension of the synovial pouches under the vasti muscles which marks synovitis of the knee-joint. Sharp febrile symptoms characterise both conditions, but in synovitis they are of a much more acute type than in bursitis. If the inflammation is not arrested, rigors come on, and give notice that suppuration is commencing in the interior of the inflamed bursa.

On the other hand, these bursæ are often very chronic in their growth; they seem to depend rather on a genuine hypertrophy than on any inflammatory condition. This patient had never had any acute symptoms, but the tumour had gone on steadily and painlessly increasing in size, until by its bulk it interfered with her occupation. Sometimes the tumour owes its size to a great increase in the fluid contents, but more often, as in this case, the walls of the sac become greatly thickened, while the fluid contents are comparatively small. We often meet with hygromata as large as an egg, but rarely do we find them of such an enormous size as this; in fact, I never met with a case in which the hypertrophy was so extreme. It nearly resembles in size the one described by Courtin in the *Archives of Medicine* for 1830, which, however, was removed piecemeal, and which was said to have been as large as an infant's head.

The walls of these tumours show a great development of fibro-plastic material, and their contents are very variable. We generally find gelatinous masses floating in a turbid serum; sometimes little rice-like bodies in great numbers, which roll over each other, and when the knee is pressed give a peculiar grating sensation to the hand; occasionally they contain fat and cholesterine; sometimes there are fibrous bands crossing from one side of the interior to the other; and, lastly, in some rare cases we find masses of calcareous deposit, either studding the lining of the sac, or lying loose in its interior.

In a case mentioned by Rokitansky, the contents were of a very remarkable character. They were a thick black fluid, in which were scattered little white crystalline masses, which on examination were found to consist chiefly of phosphate and carbonate of lime, with an admixture of magnesia. The plates of cholesterine obtained from this specimen, which I have here under the microscope, are very characteristic, and you will examine them for yourselves after the lecture.

Sir Benjamin Brodie first indicated the true nature of the loose floating bodies found in these bursæ. He says: "At first the coagulated lymph forms irregular masses of no determined shape, which afterwards, by the motion and pressure of the contiguous parts, are broken down into smaller portions. These by degrees become of a regular form, and assume a firmer consistence, and at last they terminate in flat oval masses."

It now remains to notice what is the course of these tumours. They become absorbed spontaneously in some few cases where the cause of irritation is removed; but more often, from their exposed situation, they receive an injury, and then they either fill with blood, and from their great size demand operative interference, or they take on acute inflammation, and end in abscess. The pus rarely finds its way directly to the surface, but spreads in every direction, and sometimes, though rarely, makes its way into the knee-joint. Free division of the thick skin at the summit of the bursa patellæ is necessary at as early a period as possible; for should the pus diffuse itself, a vast abscess will form, from which sinuses may result, and the cure be thereby protracted for many weeks. Should a large purulent collection exist, you had better make an opening on either side of it, then introduce a drainage-tube, wash the cavity out twice a day with a weak solution of sulphate of zinc, or some other mild astringent, and maintain pressure over the surface of the knee with sheet lead and a roller.

If you are consulted as to how you can best prevent the development of these tumours, you must enjoin the avoidance of all pressure, the use of iodine paint or blisters externally, or the application of firm pressure with sheet lead after their fluid contents, which in the early stage are thin and limpid, have been evacuated by a fine trocar. The use of the trocar may be more than once required, but it is attended with no constitutional mischief, and is not often followed by an inordinate amount of inflammation in the interior of the sac. Should the tumour pass this stage, and become, as in the present instance, larger than an orange, you will find palliative treatment of no avail. Blisters, the actual cautery, and simple puncture will naturally be of little use. The walls will have become so thick that more decisive steps must be taken. Now what means have you at your disposal? You may pass *setons* through the sac, as recommended by Benjamin Bell; but this is a tedious and an uncertain process, and in such cases as this would scarcely be likely to succeed. You may resort to *injection with the tincture of iodine,* as in the treatment of hydrocele; but here, again, the thickness of the walls of the tumour and the altered and viscid nature of the contents would probably act as a bar to the healthy union of the parietes of the bursa. You might make a *crucial incision* into the tumour, turn out its contents, break down its walls, and then leave the wound, after protracted suppuration, to heal up by granulation—a dangerous and rather crude mode of operation, which I should be sorry to employ. Lastly, you may *extirpate the tumour en masse*, as you have seen me do in this case. That this is not an operation to be undertaken lightly there can be no doubt. The bursa is often, as it was here, very vascular; it may have firm adhesions to the patella; and, moreover, it may have inseparable connexion with the knee-joint. Velpeau, indeed, records two deaths after the operation. Still, if performed in cases where the tumour is freely or to a considerable extent movable over the subjacent parts, and where the patient's constitution is sound, I think it is preferable to any other operative procedure. It at once rids the patient of the disease, and is not followed by the protracted suppuration and attendant risk characteristic of the other measure which I have laid before you, and therefore I do not hesitate to recommend it to you in preference to any of them. Entire rest, and great care in the after-treatment of the patient, will materially help in bringing the case to a favorable issue.

Original Papers.

ON THE DIFFUSION OF SCARLET FEVER, AND ITS ARREST.

By JOHN W. OGLE, M.D.,

Physician to St. George's Hospital.

THE alarmingly increasing proportions which scarlet fever is assuming in this country not only, I venture to think, justifies, but imperatively calls for, the relation of any facts which may even remotely tend to fix attention upon the numerous channels of its communication, or may give rise to suggestions respecting means for its abatement. I trust that the following facts which I shall record, all of which have more or less directly come within my personal knowledge, may be considered pertinent. The first two cases go far to show how people may be fully alive to the necessity of taking all precautions in preventing infection, and yet use means which are inadequate.

A short time ago I was asked to visit a girl aged about fifteen who was dying of scarlet fever. Upon inquiry her history proved to be as follows. She was the surviving sister of four brothers and sisters, all of whom had died of scarlet fever three months previously in the same house wherein she was lying. On the occasion of their death, it appears that the father and mother—very well-to-do people—had taken all the means they could think of for purifying the house; the furniture had all been scrubbed and cleaned with carbolic-acid solution, and the bedding and clothing of all kinds properly cleansed; the walls stripped, re-covered, and painted, &c. The parents left the house empty, and went with their only girl to Brighton for ten weeks, partly with a view to prevent subsequent infection, and partly out of a natural dislike to return too soon to the scene of so much disaster and unhappiness. They then returned home, and in rather more than a fortnight the remaining child sickened with scarlet fever, and the attack was so rapid and severe that she succumbed in spite of all assistance. On examining into the precautions taken to prevent such infection as had occurred, we could not for some time comprehend how this girl could have taken the disease, until we found out that, in the universal cleansing, two large old-fashioned armchairs existed in the sick room with hair cushions and backs, the outer coverings of which were much tattered, allowing the hair to protrude in various places; and these cushions had, by some oversight, not been emptied and replenished. Thus there seemed every probability that the loose hair hanging from these dilapidated cushions and floating about had been the nidus for the spread of infection.

In the second case of oversight as to preventive measures which not long since come under my notice, all care during convalescence was supposed to have been taken, when, after an interval, the disease again appeared, apparently in consequence of a *single* article of clothing which had been left hidden in a drawer that had not been cleaned out.

The following cases show how egregiously careless people are apt to be in this matter of infection, as if recklessly ignoring its existence. A little child is now under my care at St. George's Hospital who was admitted with dropsy of the whole body, and acute inflammation of the kidneys, passing a large amount of blood from those organs. It proved, on inquiry, that she had been ill a month of scarlet fever, and that until this bloody urine came on she had actually been allowed to go day by day to school, throughout the extremely cold and foggy weather which we have been having, and permitted to mix with her fellow school children, not being kept at home a single day throughout the course of the fever and the peeling of the skin which followed; the friends and schoolmistress considering it only a case of scarlat*ina*, and, as the mother said, "*not worse than a cold.*"*

This very day, again, I have investigated the case of a boy who caught scarlet fever under the following circumstances:—He was living as servant in a respectable family, several members of which had scarlet fever. He was himself taken ill, and for an entire week, whilst ill and vomiting from time to time, was kept daily at his work, cleaning boots and shoes, scrubbing the outside steps in this inclement weather; his friends, who lived near, not being communicated with until he was sent home prostrate to his mother, in a state of delirium, which has now been going on for four days.

I may here mention that I have known a case of scarlet fever in which the infection appeared undoubtedly transmitted in some small woolen patterns sent by post from an infected family; and within the last month a lady told me that a poor woman in her neighborhood recently received a letter which had been allowed to be written and forwarded by a friend suffering at the time from small-pox in one of our public institutions. A short time ago a lady informed me that she had been calling with one of her children upon another lady, was shown into her room, and after half an hour's conversation the lady said: "By-the-bye, perhaps I ought to have asked the servant to have told you that our children have scarlet fever, as you might not like to stop very long." The little patients were in the adjoining room behind the folding doors all the time. I need not say that the morning visit was not prolonged.

Some facts have recently been recorded tending to show that the laundry may be the agency of infection, the clothes of the sick being washed at the same time and in the same tubs as those of other people. Of course under any circumstances this ought not to be; but I would suggest that, even should this promiscuous washing occur, if the suspected clothes were well boiled—i. e., submitted to the temperature of 212° (even if they had not been immersed in some suitable disinfectant, as assuredly such clothes should always be, before removal from the bed room), all chance of infection would be destroyed.

But there is another way in which newly-washed clothes may become a means of propagation of scarlet fever and other like diseases, and that is by their being dried and "aired" (as they must needs be very frequently in large towns) in the rooms of washerwomen. Dr. R. Thompson, of the Brompton Hospital, informs me that he has himself seen a young man covered with the eruption of small-pox in a room, from the ceiling of which several articles of clothing which had just been washed were suspended in the drying process.

But perhaps one of the saddest modes of contracting infection is when people go in search of health to some sea-side or watering-place, and are plunged in an atmosphere of infection by lodging in houses or rooms inhabited but recently by fever-stricken patients, and not yet duly purified. In many instances it is possible that the lodging-house keepers may be ignorant of the gravity of the matter, and think that their slender efforts, consisting of the use of a little whitewash and soap, are all-sufficient for thorough disinfection. But whatever may be the explanation in some cases, I have known of several well-marked outbreaks of scarlet fever contracted by lodging in apartments lately tenanted by sufferers from that affection.

The following case, for which my informant, a practical and intelligent gentleman, vouches, is a most painful example of culpable acquisitiveness, which might have led to important consequences. A person went to a watering-place two summers ago, intending to procure lodgings. The place was crowded, and after difficulty he found one house where he was told he could have accommodation, but that he must wait until evening, as the "party" occupying the rooms was going out, but could not leave until late in the afternoon. Pleased to make this arrangement, he sauntered out, and accidently met a friend who was staying in the place, and to whom he related his good fortune. His friend inquiring as to the house where he had secured lodgings, at once recognised it as one said to contain inmates dangerously ill with scarlet fever. This statement of course led to further investigation, and it turned out indeed that so it was; and that, moreover, the "party" described as being about to vacate for the new-comer was no other than a dead man who was to be carried forth to his burial, a victim to the fever.

The same gentleman, this year, being at the sea-side, was strolling out with his landlord, when he directed his attention to a house where several lodgers lay ill with scarlet fever. They were, however, convalescent, and about to remove. When asked by my friend how long it would require to make the lodgings again habitable, he told him they would all be ready for new visitors in twenty-four hours. "But," said my friend, "can the medical man in attendance allow that?" The reply was, "Ah, that is his business, not mine. Besides, to whom could he apply on the matter?"

The facts I have briefly related above—and I could recount others of a like kind, did space permit—speak for themselves: and, being simply such as the experience of daily medical life has casually afforded, I doubt not that, if anything like strict inquiry were made, every medical man would be able to supply numerous instances of an equally instructive and painful character.

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* I am fully persuaded that much harm is done by the use of the word scarlat*ina*. Among the public many suppose it stands for quite a different disease from the infectious scarlet fever; others think it at any rate imports a very mild and innocuous variety of the disease. Thus are they led to be wanting in care towards those suffering from the disease. Even medical men unwittingly lend themselves to this fallacy very often, by using the word in relation to slighter cases, with the view of allaying apprehensions on the part of friends.

If this be so, and if in every town and village the same culpable negligence is being constantly repeated, how readily may we account for the overpowering vigor which this plague appears to have acquired in our country, and for the increase of area which it seems to cover, no Phinehas standing up to stay its progress. It must be borne in mind that the strength and virulence of the disease must be estimated not merely from the number of deaths reported by our registrars, but also from the dropsies, the affections of the kidneys and of the glandular system, the permanent shattering of the general constitution, and the proclivity to numerous secondary disorders, entailed by the disease.

It appears necessary that the public should recognise, and realise more strongly and definitely, the various channels by which the disease appears to be communicated; and if it is to be arrrested, or even checked, with anything like an approach to completeness, some species of "stamping out" must be resorted to, and measures as stringent as the liberty of the subject will permit to be entertained must be devised by the powers that be, for the protection of the public. I would therefore venture to make the following suggestions:—

1. That it should be rendered compulsory for every householder or medical man to make a report of every case of contagious disease to some recognised authority—either to the ordinary medical inspector of health, if such exists in the district, or to some medical man who should be appointed inspector for the purpose. This should be done, of course, whether the case be among the rich or the poor.

2. That, acting on this information, the duty of the inspector should be to enforce a system or code of proper precautionary measures for the avoidance of the extension of the disease (the details of such a system to be approved by the Medical Department of the Privy Council). Where money and appliances existed, the precautionary scheme would readily and quickly be carried out by friends; but when cases occurred either in the upper or middle classes, in families whose household arrangements are such as not to permit of its execution, but who are able to pay for care and medical attention, then the patients should be removed to "retreats." Hence I would suggest—

3. That proper "retreats" or "sanatoria" should be provided in some convenient place outside the town, properly segregated, and surrounded by open ground or gardens, probably worked by private speculation (and a very lucrative one I believe this would be to such medical men as would undertake them), but under the general watching of the before-named inspector. Patients in such sanatoria should of course be attended, if required, by their own medical men, but in very many instances most probably families would be content with the services of the resident medical attendants. For the indigent, the hospitals or infirmaries provided by the Poor-law Board would be the proper receptacles; and parishes and unions would seem to have as much need of sanatoria for scarlet fever (and that a tolerably constant one) as lately they had for relapsing fever.*

4. I would suggest that scarlet fever cases should not be capable of admission into any of our general hospitals (any more than small-pox) until the desquamating stage is past; unless provision be made for their isolation in some part of the building devoted to their reception, and provided with all appliances requisite for the treatment of such cases, for which special nurses should exist, having as little communication as possible with the institution at large. I make this suggestion by reason of the frequent communication which occurs in our hospitals of the disease of scarlet fever patients to their neighbors, *even to surgical patients*, which sometimes proves fatal; also on account of the danger of infection which is incurred by the great number of promiscuous visitors, often young children, who come daily into our hospital wards, and hang about the beds of the patients, whom they play with and amuse, handling their books and clothing, pocket-handkerchiefs, toys, &c. And this danger is not confined to the visitors, but extends to *their* families at home, to whom they may undoubtedly, by means of fomites, transfer infection, without themselves being the subject of the disease.

I have satisfactory reason for saying that patients free from scarlet fever in our hospitals may, by exposure to the poison in the wards, carry it out with them, and subsequently die of it; although they may themselves leave the hospital apparently in perfect health. I have personal knowledge of such a case.

I have above alluded to the culpability of lodging-house keepers admitting families into apartments without informing them that cases of infectious disease had lately inhabited them. I would conclude by suggesting the importance of our having positive knowledge as to what the law says on that point. Are such people generally amenable to law for such conduct? Is it penal?—or does it only come within the law in certain localities, according to the working of certain Health Acts? I cannot help thinking that a full statement and understanding of the law on this point would be of great service to the profession and to the public.

November 24th, 1870.

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TREATMENT OF TYPHUS BY COLD BATHING.

By O. De Wet. Fehrsen, M.D. Edin.

My son having come over from Aberdeen, I was induced to visit with him the military lazarettos, and see the numerous cases of typhus brought from the seat of war in France. Readers of The Lancet will, no doubt, be aware that the typhus now raging amongst the French and Prussian troops is the "typhus abdominalis" of the Germans—our "typhoid or intestinal fever," a type of fever much milder than our "endemic Scotch or Irish petechial typhus," less pronounced in its invasion, and much less contagious, although cases have occurred amongst hospital attendants which leave no doubt of its contagious nature; the percentage of these, however, is very trifling, as the admirable hospital arrangements, amongst which are the cavalry barracks extemporised into large wards, secure the utmost cleanliness, and no lack of fresh air. The fever cases are indiscriminately mixed with the wounded and those suffering from dysentery, of whom there are several hundreds. On their arrival from the Rhine, the fever cases present a very formidable appearance, especially amongst the French prisoners, among whom, consequently, the largest percentage of fatal cases occurs. From the general breakdown of the French commissariat, these poor wretches were half starved before their capture, and, on taking ill, were, depressed in mind and body, forwarded with hundreds of other sick and wounded, with but scanty attendance, to Dresden and other places in Prussia. Amongst these were some very serious cases of fever, offering a very fair field for testing any particular line of treatment. This was accordingly done, and the cold water system put to the test by the physicians who had volunteered their services in aid of the sick and wounded. I may mention *en passant* that the employment of cold baths in the treatment of typhus in the Stadtkrankenhaus had been followed for the last three or four years. Few of the medical men had, however, the courage to try it in private practice, partly from the lack of water prevailing in the houses in Dresden, but chiefly from the difficulty of persuading patients and their friends to consent to the trial of what appears such a severe measure. In the Stadtkrankenhaus, however, the arrangements for bathing are complete, and, with a large hospital attendance, as many as six baths a day to a single patient lead to no inconvenience. The practice carried on here is as follows:—As soon as possible after admission into the hospital, the temperature of the patient is ascertained—in women, from the axilla; in men, per rectum. If the thermometer shows 40° of Celsius or centigrade, equal to 104° Fahr., he (or she) is put for fifteen minutes in a bath of 15° of Celsius (59° Fahr.) up to the neck; in cases of much headache or delirium, an additional quantity of cold water is poured over the head, or cold compresses applied. A measurement three-quarters of an hour afterwards uniformly shows a fall of two or three degrees. The cold bath is repeated during the first week, from four to six times a day, or as often as the temperature attains 39·5°; experience having shown that the rapid cooling down of the febrile heat to a normal temperature is a powerful means of mitigating the symptoms, shortening the duration of the disease, and favoring an early convalescence, besides obviating the necessity of prolonged bathing at a later period of the disease. The most striking benefits resulting from this cold bathing are—1st. That the delirium is generally either mild or easily subdued. 2nd. An earlier return of sleep. 3rd. A total absence of bed-sores. 4th. A less prostrate state of the system when the patient leaves the hospital.

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* Such sanatoria are found most useful in the case of our large public schools. Why should not our universities also possess them? It has, however, lately at Oxford been made compulsory for lodging-house keepers to "declare" any cases of infectious disease which occur in their lodgings.

Women, being more manageable, bathe more willingly than men; indeed, it seems to require no small amount of resolution to get into a bath of such a low temperature (in Leipzig they use even colder water than here). Many cry or give way to moaning for a few minutes, until, by a little courage and lying quite still, the body gets accustomed to the cold. If the water be, however, in any way disturbed, immediately they commence moaning and crying, showing, probably, that the stratum of water in immediate contact with the body must have acquired a higher temperature from the evolution of the febrile heat.

After the first bath the sick show less objection to its repetition; indeed some ask for it, whilst others have been found at night stealthily to get into a bath in the absence of the nurse. I saw about 200 cases in different stages of the disease, mild and tractable, very unlike what one would meet in a hospital where a purely medicinal treatment was adhered to.

Nothing contraindicates the use of the bath except a very feeble heart's action, hæmorrhages, or perforation of the bowels; nor is a little bronchial affection looked upon as an obstacle in the course of bathing. The lightest food, with very little claret, is all that is given. Quinine is administered for the specific purpose of lowering the febrile heat: one gramme, equal to sixteen grains, in two divided doses in the evening; it is supposed that in this way its full febrifuge effect is obtained I was told that two physicians, who had had much experience in the famine typhus which raged in the Northern Prussian provinces some three years ago, had been called to the German headquarters, and there ordered a number of the fever cases to be carried out of their beds, and put into the river Maas, with the happiest results. The statistics of the Stadtkrankenhaus, at the present time, contrasts most favorably with those of a few years ago, when the mortality averaged 11½ per cent., as at present it does not exceed 4 per cent.; and I am assured by one of the physicians, in whose wards there is a large excess of typhus cases, that out of upwards of seventy-six cases, of whom nearly one-half were brought in from the railway station in the most deplorable state of prostration, he lost only two cases —a result which he never could have expected, or obtained by any other process of treatment. I have seen the cases myself and communicated with the attendants, and have no reason to suspect that any special hobby could have made any of these parties to state what was not also lately in accordance with the results realised; indeed, cooking of reports or accounts would be simply impossible in the Stadtkrankenhaus and military lazarettos, unless everybody becomes part and parcel of the deception. Cold bathing in fever must always, I imagine, remain a trying affair in private practice; but the physician who would allow himself, through any difficulty or opposition on the part of relatives or friends, to be debarred or terrified from employing, in an urgent case of typhus, such a powerful remedy as a cold bath, will certainly not study his own interest, and least that of his patient. The result of the first bath will not fail to remove all subsequent opposition to its repetition. The more timid of the practitioners here employ frequent cold sponging, or the application of cloths steeped in cold water over the chest and abdomen.

It appears to me that, in spite of the wretched lowering or starving system which prevails so much in Germany, the results of their cold bathing in fever contrast most favorably with our experience at home, and carry with them a strong recommendation to give the system a fair trial in our hospitals at home, even should we begin with a less trying temperature than that of 59° Fahr. I am told by German physicians that they would not hesitate to employ cold baths in cases of genuine petechial typhus; nor can I see anything in their employment incompatible with our exhibition of wine or brandy. The baths might, in the first instance, have a pleasant and bearable temperature. They might, as it has been shown they do in the typhoid type, modify and shorten the period of excitement and delirium, so as to exert a salutary influence on the subsequent prostration, and tendency to asthenic coma. The high temperature which prevails for several weeks in typhus and its allied types vitiates all the secretions, exhausts the nervous centres, thereby impairing the heart's action, producing a drooping state of the vital powers, favorable to passive congestions, low inflammations, and other serious complications. A remedy, therefore, that promises to moderate the intensity and shorten the duration of this morbid heat, cannot fail materially to influence the progress and termination of our petechial typhus. During a twenty year's practice in the Cape Colony, I witnessed several epidemics of African typhoid remittent fever, for the treatment of which I would have been delighted had I had the courage or confidence to employ such a powerful means as cold bathing for controlling a fever as formidable and fatal as the worst cases of typhoid I have witnessed in the Stadtkrankenhaus and military hospitals of Dresden.

Dresden, November, 1870.

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ON THE

VALUE OF TINCTURE OF ARNICA IN THE TREATMENT OF ACUTE PULMONARY AFFECTIONS.

By C. C. Balding, M.R.C.S., L.S.A.

I am desirous of calling the attention of the profession to the value of tincture of arnica in the treatment of pneumonia and other acute pulmonary affections. Some years ago Mr. Mitchell Henry, then assistant-surgeon at the Middlesex Hospital, wrote an article in The Lancet advocating its use in allaying irritative traumatic fever. A few weeks after the appearance of that article I was summoned to a man, a railway porter at this station, who had been squeezed between the buffers of two trucks. I found the sternum depressed, and, consequently, dislocation of sternal ends of both clavicles; he was suffering acute pain in the chest, and was almost in a state of collapse, and, from his condition, I feared injury to the lungs. With difficulty I got the sternum in position, and when he rallied, which he soon did, I gave him five minims of tincture of arnica every four hours. To my surprise, the pulse kept down; he had no febrile disturbance whatever, and in a few weeks resumed his usual occupation.

It then struck me that a drug exercising such a powerful effect upon the heart's action must be of benefit in acute pneumonia, and I determined to give it a trial, and it was not long before I had an opportunity of doing so. Its good effects exceeded my hopes, and since then I have treated all my cases of acute pneumonia in adults with the remedy, for such I must call it, as I have never known it to fail. I employ it also in acute hæmoptysis; but when there is extensive tubercular disease of the lungs I have not found it lower the circulation. A case of hæmoptysis and one of pneumonia have just come under my care, and these being similar to many others, I will simply give them, thinking the result of the treatment so striking that the profession will be induced to give it a fair trial.

Bernard T——, aged twenty years, a strong, muscular young man, a brickmaker, attended at my surgery, four miles from his own home, on Sept. 1st. He was seen by my assistant, Mr. P. P. Langford, who reported him suffering from acute febrile disturbance. He advised the patient to get home as quickly as he could and go to bed.

On the 3rd Mr. Langford visited him, and found that he was suffering from acute pleuro-pneumonia of the right side. Posteriorly there was dulness over nearly the whole of the lung, with friction sound and some small crepitation in the upper part. At the base of the left lung, for about two fingers' breadth posteriorly, the mischief had commenced. Pulse 100, full and incompressible; respiration not taken. Mr. Langford told me of the case before prescribing, when I advised him to give ten-minim doses of the tincture of arnica, with solution of acetate of ammonia, every three hours.

Sept. 4th.—I visited him. His countenance was then dusky and anxious; pulse 100; respiration 60. The physical signs of the inflammation showed that it had not extended since the previous day. To continue the medicine.

5th.—Seen by Mr. Langford. Pulse 85; respiration not taken. Medicine to be taken every four hours.

6th.—Pulse 80; respiration 40; countenance improved. Continue medicine.

7th.—Pulse 72; respiration 32; small crepitation audible in upper part of the lung posteriorly. To take the medicine every six hours.

8th.—Pulse 60; respiration 24; lung improving. Continue medicine every six hours.

10th.—Pulse 50, irregular; respiration 30. He was sitting up in bed, taking a milk mess, when I visited him and expressed himself as quite comfortable. To take five minims of the arnica three times a day.

12th.—Pulse 60, irregular; respiration 24; right lung normal, except for about two fingers' breadth at base, where there is small crepitation; left lung well. To discontinue medicine.

The rapid absorption of the effused products of inflammation in this case is remarkable, but it is only what I have seen in several others. The persistent effects of the drug also are very noticeable, as I have known the pulse remain at 40 for several days after the medicine has been discontinued, and even after the patient has got about. The case of hæmoptysis is briefly as follows:—

Mr. W. B——, small farmer, aged sixty, came to me on the 18th of August last, and said he had coughed up, he thought, three pints of blood on the previous day. I examined his lung, and did not find any signs of extensive tubercular disease. He had been subject to winter bronchitis, and there were symptoms of an atheromatous state of vessels. Pulse 90, full and incompressible. Ordered ten minims of tincture of arnica, with fifteen of dilute sulphuric acid and syrup, every four hours. His pulse was very soon reduced, and in four or five days was down to 40, and remained so for three or four days; he got about his employment in ten days, and has had no return of the hæmoptysis.

I read a paper on the subject, three years since, before the South Midland Branch of the British Medical Association at Luton. Dr. Prior, of Bedford, then president, entered into the subject, and has since given the remedy a trial. At the last meeting of the Branch Association at Aylesbury, a paper of his, illustrated by cases, was read, which spoke very approvingly of the remedy.

I may state that I used to give but five-minim doses of the drug, but since the Pharmacopœia of 1867 has contained a formula for the tincture, which is evidently weaker than that previously in use, I give ten minims. I must ask those who may be induced to give arnica a trial, not to be dismayed should no benefit be apparent in twenty-four hours, but to continue the medicine, and I feel sure the effects will be unmistakable in forty-eight hours; but I have seldom seen a case really get worse from the time the arnica was commenced.

"I have much pleasure in endorsing the above account of Mr. Balding on the use of tincture of arnica in the case of the man B. T——. When I visited him on Sept. 3rd he was suffering from extreme dyspnœa, almost to exhaustion, with severe general pyrexia, so much so that he could hardly sit up to allow me to examine his lungs posteriorly; and this, coupled with the physical signs of extensive mischief in both lungs, led me to form a very unfavorable prognosis of the case. I am truly surprised at the rapid improvement following the administration of the arnica.

"Phin. P. Langford, M.R,C.S., L.S.A."

Shefford, Beds, September, 1870.

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NOTES ON A

CASE OF CHRONIC HYDROTHORAX.

By John Dewar, L.R.C.P.E., &c.

A description of the following case may not be uninteresting to the profession, as affording a good example of one of the rare forms of pleurisy. But it is not so much on account of its rarity, or even because of the different mode of treatment successfully adopted, that I wish to record it, as on account of its being a good illustration of what was long ago pointed out by Stoll, and inculcated in his Clinical Lectures by the late Professor Trousseau, but which, I fear, is not so prominently kept in view as the importance of the fact requires: namely, that *latent* pleurisies are very frequently manifestations of a tubercular diathesis—expressions of a phthisical taint. So that the occurrence of an attack of latent pleurisy without any apparent exciting cause, and especially if, as in the present case, there be a family history of consumption, should arouse the attention of the medical attendant, and excite his fears as to the ultimate issue of the case; he will thus be induced to use every effort, by warning the patient against colds, and by using prophylactic treatment, to arrest the insidious onset of pulmonary consumption. I shall first record the case from my note-book, and then make a few remarks.

Dec. 17th, 1868.—Mrs. B——, aged thirty-eight, a month ago was delivered of her fourth child, attended by a woman, and said to have had a rather difficult time—a dry labour, and "no great loss." Patient did not get up for three weeks after; but two or three days after she got about—or three days ago—she felt her breath begin to get short, and gradually getting worse, though up to the time of my visit she attempted to do her household duties. She now looks pale and anæmic, with an anxious expression of countenance, and is evidently suffering from great dyspnœa, which compels her to stop two or three times for breath during a sentence. Has no pain, cough, or expectoration. Never had any cough or shortness of breath before, nor, indeed, anything the matter with her, having been always "hearty." Complains of tightness over sternum going up to the left shoulder, but nothing amounting to pain. Pulse 132, and thready; skin cool; tongue clean; and bowels costive. Ordered to bed.—*Physical signs:* Very marked dulness over the whole left chest, front and back, reaching up to the clavicle, and not altered by position. No apparent enlargement of left side, and no bulging of intercostal spaces. Dulness not abrupt at middle of sternum, but shades off. Inspiratory movements of left side defective. Right side normal. On the left side the apex-beat cannot be felt anywhere, but is quite distinct just under the right nipple, with heart's base towards mid-sternum,—giving one the idea of this being a case of transposition of organs. On auscultation, vesicular murmur is found to be entirely gone throughout the left side, front and back; and, except near the sternum and in the intrascapular region, where there is tubular breathing, no sound whatever can be heard, healthy or morbid—not even ægophony. Heart-sounds barely detected left of sternum, but distinct and normal, though weak, on right side. Breathing slightly puerile on right side. To take ten grains of hydrochlorate of ammonia, with two grains of sesquicarbonate of ammonia, every four hours.

18th.—Physical signs unaltered; lies on back. Slightest exertion increases the already severe dyspnœa. Pulse 135. To take twenty grains of the hydrochlorate, and ten grains of the sesquicarbonate every three hours; and calomel, with compound jalap powder, to relieve bowels, which are confined.

19th.—Breathing a little easier. Has perspired freely. Pulse 120, and a little stronger, Continue mixture, and weak brandy-and-water occasionally.

20th.—Breathing decidedly better, and vesicular under clavicle; bronchial elsewhere. Heart sounds begin to be audible about the left breast, and pulsations felt, though not so distinct as on the right side. Pulse 120. Mixture as before. Rub chest with croton oil liniment, and take strong beef-tea with the stimulant.

21st.—Says she can breathe better, and take a deeper breath. Vesicular breathing over greater part of left side; apex beat at left breast. Pulse keeps at about 120. Least exertion puts her out of breath, which is easy when quiet. Feels very weak. To take bark and ammonia, with plenty of nourishment.

Patient continued to improve every day. It is worthy of note that there was no bulging either of the left chest as a whole, or of the intercostal spaces, though, judging from the physical signs, the amount of serum must have been great. But this is easily understood when we remember that the bulging depends partly on paralysis of intercostal muscles, and partly on serous effusion into surrounding tissues, and that that is not likely to take place when the effusion has been rapid (as it evidently was in this case), or when the pulmonary pleura only is affected. Whatever the explanation, the occurrence is not unfrequent, especially in advanced life. The absence of ægophony is usual when the lung is much compressed by the effusion. So, too, the increased difficulty of breathing on the least exertion, as changing linen, may be accounted for by the heart being forced out of its place, the aorta and large vessels being twisted, and therefore the circulation to a certain extent impeded. The treatment, dictated by the weakness of pulse, and prostration of patient, was stimulant from the commencement: carbonate of ammonia and brandy, with large doses of muriate of ammonia, which latter produced powerful diaphoresis. No mercury was given beyond the five grains of calomel, with compound jalap powder as a cathartic. The hydrochlorate of ammonia would seem to have some effect on serous membranes, for it has been found useful in some kinds of ascites; but whether all its good can be explained by its diaphoretic or diuretic action, or whether it has some special power, is not clear; at all events it is deserving of further trial in similar cases.

June 3rd, 1870.—Was called in to see patient to-day. Says she has been in perfect health since last illness about eighteen months ago, up till March of the present year, when she thinks she caught cold. Since then has had a cough, and slight shortness of breath, which gets worse. Has no appetite; has night-sweats, and gets very thin. Expectoration mixed slightly with pus. Dulness under left clavicle, and respiration harsh and imperfect. Finger-nails clubbed. Has lost four sisters under twenty-five years of age, from consumption.

Great Wakering, Essex, July, 1870.

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ON THE PRODUCTION OF HÆMORRHAGE, ANÆMIA, ŒDEMA, AND EMPHYSEMA IN THE LUNGS BY INJURIES TO THE BASE OF THE BRAIN.

By C. E. Brown-Sequard, M.D., &c.

My object in this short paper is to call the attention of practitioners to some experimental facts, which, in connexion with a great many clinical facts, show how frequently the lungs are altered consecutively to a lesion of the brain. In making experiments on the comparative lethality of injuries to the left and the right sides of the brain, I found, a year ago, that one of the most frequent causes of death, when it does not occur immediately or very soon after wounds of the brain, in guinea-pigs especially, was pneumonia. I was led by this fact to perform a large number of experiments to ascertain the immediate effects of an injury to the brain on the lungs. The results obtained were startling; in almost all cases of injuries by crushing or section of the pons Varolii ecchymoses were found in the lungs. Sometimes the whole lung was crowded with effused blood, and real pulmonary apoplexy existed. In some instances the effusion took place in the bronchial tubes. Injuries to other parts of the base of the brain, especially the crura cerebri and the crura cerebelli, sometimes are followed by the same effects on the lung, and it is extremely probable that a slight pressure upon the pons Varolii by effused blood is sufficient to produce it. Injuries to the medulla oblongata and to the spinal cord have but very rarely (only in three or four experiments out of a great many) caused an effusion of blood in the lungs. This is the more remarkable that, without any doubt, the nerve-fibres going from the pons Varolii to the lung, which cause the rupture of small bloodvessels in this viscus, pass through the medulla oblongata and the cervical part of the spinal cord. Many experiments have shown me that it is not through the par vagum, but through the sympathetic nerve, especially by its spinal roots, which throw themselves in the first thoracic ganglion, that the peculiar influence of the irritated pons Varolii exerts itself in producing a pulmonary hæmorrhage.

Many experiments, some of them made with the help of an ingenious physiologist, Dr. J. S. Lombard, of Boston, U.S., have shown me that the condition of the lung, as regards distension or collapse of the air-cells, does not materially change the effect produced on the lungs by the crushing or a wound of the pons Varolii. I have filled the lungs (the thorax opened sometimes) with as much air as insufflation could push in, and seen ecchymoses, small or large, appear at once, or almost at once, after the irritation of the pons. On the other hand, I have withdrawn as much as I could the air contained in the lungs, and ascertained that ecchymoses appeared then as in the preceding experiments from the same cause. It is not essential at all that there be a continuation of breathing after an injury to the pons for the production of hæmorrhage in the lungs. Indeed, in all the cases of crushing, and in a great many of the cases of section, of the pons Varolii which I have performed, the kind of syncope which I have described as the respiratory syncope (inhibition of respiration) exists at once after the lesion, and notwithstanding this complete cessation of respiratory movements, the breaking of small bloodvessels takes place in the lungs.

A lesion in one of the lateral halves of the pons produces generally a much greater effect in the lung on the opposite side than in the one on the same side.

The above experiments have been made on guinea-pigs; but in two rabbits and three cats I have found that the section or the crushing of the pons Varolii produced also a hæmorrhage in the lungs.

A hæmorrhage is not the only immediate effect that can be observed after an irritation of the base of the brain by crushing or cutting: an anæmic condition, œdema, and emphysema can also be produced. Some small parts of the lungs are found perfectly white, and, according to the examination of a distinguished micrographer, M. Rauvier, who has kindly helped me in some of these researches, absolutely deprived of blood, no doubt through a spasm of the bloodvessels having emptied them of their contents. This may occur after injuries of almost all the parts of the base of the brain, but especially the pons Varolii. Not so as regards œdema, which principally appears after an injury to the medulla oblongata. Looking at a lung in which such an alteration exists, one observes one or several greyish spots, generally circular, and of the size of the head of a pin, protruding as a part of a sphere from the surface of the lung. This pearl-like part of the lung, according to my able friend, M. Rauvier, contains a good deal of serum, and its minute bloodvessels are filled with the white corpuscles of blood, and free from red corpuscles. This is, indeed, a most monderful fact, and the more so that this change in the contents of the pulmonary capillaries is immediate.

The last effect I intend to mention of an injury to the base of the brain on the lungs is already known to experimenters, I mean emphysema. But what I will state about it is a new and very remarkable fact, which does not agree with the reigning theories of the mode of production of emphysema. It is that this morbid condition can appear when not a single respiratory movement takes place, after an irritation of the base of the brain either by crushing or cutting.

When I publish the details of my experiments on the influence of injuries to the brain on the lungs, I will show that, in man, diseases of or injuries to the brain very frequently produce organic alterations in the lungs. I will content myself here, to prove the frequency of that morbid influence of the brain on the pulmonary organs, to state that, out of 188 cases of organic disease of the brain recorded by Calmeil,* there was a morbid state of the lungs, especially inflammation, in more than sixty cases—i.e., in one case out of three. I have no doubt that many patients attacked with brain diseases die from a disease of the lungs caused by that of the central organ of the nervous system.

January, 1871.

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TWO CASES OF INJURIES OF THE LIVER:

WITH REMARKS.

By Gopaul Chunder Roy, F.R.C.S.

A young Mahomedan, aged about thirty years, of intemperate habits, came under my treatment in the Nagpore City Hospital in the year 1867, with a large abscess of the liver. With the history of acute hepatitis there was a uniform bulging on the right hypochondrium, manifest in relief for some distance below the costal cartilages, in which fluctuation could be distinctly felt. As the patient was daily getting exhausted from fever, probably due to the irritation of the purulent collection, I resolved to give him the chance of life, feeble as it was, by letting out the matter. With the limited means I could command, I thought of evacuating the contents by tapping, and, as the abscess did not feel deep-seated, I anticipated no difficulty in reaching the cavity with the ordinary hydrocele trocar and canula, the only sort of tapping instrument I possessed. An incision was made in the skin, and the instrument was thrust in in the usual way. Great was my surprise to find thick, dark, venous blood flowing out of the canula instead of pus. It flowed in an even stream, as in the evacuation of the contents of a cyst. I soon discovered that it was hæmorrhage from the liver, and before two ounces escaped I plugged up the orifice of the canula and left it *in situ*. There was, of course, no diminution in the size of the tumour, and although there was some change for the better, the patient died exhausted three days afterwards. There was no recurrence of the hæmorrhage.

The post-mortem examination revealed a large abscess occupying the right lobe of the liver, which was melted into a uniform cyst, bounded by a wall of hepatic substance not thicker than half an inch. At the part where the instrument had entered, the wall was unfortunately thicker than the rest, and a few lines of hepatic tissue intervened between the point of the canula and the cavity of the abscess. The abscess had not formed any adhesion on its superficial surface with the abdominal wall, but was glued by recent lymph to it just around the seat of puncture. There was no effusion of blood in the peritoneum, and no peritonitis. The liver tissue around the canula was indurated by plastic effusion for two or three lines, but was not otherwise altered in appearance.

The next is a case of rupture of the liver and left kidney, in the person of a young Hindoo, aged about twenty-five years, who was admitted into the Medical College Hospital of Calcutta in 1866, during my incumbency as house-surgeon. He sustained a fall from a tree, fractured his rib, and had a compound Colles's fracture of the left arm. He was brought in a state of extreme collapse, but he gradually got over the shock. He had retention of urine, which for the first two days was uniformly mixed with blood. He had slight peritonitis, but was progressing most hopefully, when, a fortnight after the injury, the supervention of an attack of tetanus carried him off.

At the autopsy, we found the apex of the left kidney lacerated, and about half a pint of clotted blood effused around the organ. The lower end of the spleen seemed to have sustained a similar injury, but, as the organ was soft and friable, it could not be distinctly ascertained whether it was not a post-mortem change. The liver had three or four superficial rents on its convex surface, in the form of streaks, in the line of which a thin layer of decolorised blood could be discovered. The rents did not extend deeper than a few lines, and the peritoneal covering over them had not given way. There was an attempt to unite the ruptured portions by a thin layer of plastic effusion, which, on a transverse section, was seen to pass to the bottom of the fissures.

Remarks.—Injuries of the internal organs are always looked upon as serious, but they are not necessarily fatal. The danger depends primarily on hæmorrhage and secondarily on peritonitis. The rupture of a gland, vascular as the spleen or liver, floating loose in a cavity, with no arrangements within it to stop the flow of blood, would drain the system of its last vital fluid, and produce death from shock and anæmia. If this hæmorrhage could be prevented, even extirpation of the organ could be undertaken without the immediate fatal consequence. My first case would bear out the point that the liver can be punctured without any untoward results, if we could avoid hæmorrhage and extravasation into the peritoneum. The uniform stream of blood which flowed from the canula would have in no time brought on death, if the quantity had been allowed to escape unchecked into the abdominal cavity; but the canal of the tube opening outside converted in this case an internal wound into an external one, which was easy of control. Another important deduction can be made from the instance before us—that of the danger of inadvertently removing any metallic weapon thrust into the substance of any of these internal vascular organs. The presence of the in-

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[*] Traite des Maladies Inflammatoires du Cerveau. Two Vols. Paris, 1859.

strument serves as a plug and prevents hæmorrhage. Besides, it excites adhesive inflammation all around, and not only blocks up the mouth of the bleeding vessels, but binds the organ by bands of adhesion to the wall of the abdomen. In this state, the weapon can be gently removed without any apprehension of danger; whereas, if removed in the first instance, we leave an internal bleeding wound, that would necessarily prove fatal by continuous flow of blood. In the second instance, the rupture in the liver was not deep enough, and fortunately the peritoneal covering remained untorn, so that the bleeding was stopped by the pressure of the effused clot underneath the membrane. During life-time there was scarcely any symptom to arouse suspicion of the injury of the liver; and the healing process that had advanced, together with the favorable progress which the patient was making, leave no other conclusion than that such injuries can be easily repaired if the first danger of bleeding can be averted. There are, I believe, very few cases on record of life being prolonged to a fortnight with the amount of injury the patient had sustained. Lastly, I would draw attention to the fact of the existence of a *large* abscess in the liver without the contraction of adhesion with the abdominal wall, which is often denied as an improbable occurrence.

Glasgow, December 30th, 1870.

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FEMORAL HERNIA RADICALLY CURED BY OPERATION.

By Samuel Wood. F.R.C.S.

Mary H——, aged thirty-seven, of spare but healthy habit, was admitted an in-patient of the Salop Infirmary on the evening of Sept. 7th, 1869, with a strangulated femoral hernia. She stated that she had had a hernia for eighteen months, and that on the morning of the 6th, as she was lifting a small beer-barrel, the bowel came down so that she could not return it. As the symptoms were not urgent, she was ordered ten minims of dilute hydrocyanic acid in an ounce of water. There had been slight vomiting during the night previous, and on the morning of her admission taxis was tried on two or three occasions, but without success.

Sept. 8th.—Has passed a restless night, with occasional vomiting; hernia unreduced. Chloroform having been given, the sac was cut down upon, but not opened; the strictured portion at the neck was divided, and with a little gentle pressure, the contents, consisting of intestine and omentum, returned. It then occurred to me that, if I could detach the sac from its surroundings and invaginate it, and retain it in this inverted position, the raw surfaces would form adhesions, the opening be thus plugged up, and a radical cure be effected. Acting on this idea, I carefully detached the sac, and easily succeeded in pushing it through the openings and so invaginating it. In doing so, I could with my finger detect, through the sides of the sac, the opening of the crural ring and the edge of Poupart's ligament, and feel the end of my finger, covered by the inverted sac, well within the cavity of the abdomen. The sac being secured in this position, the external wound was closed with wire sutures and strips of adhesive plaster, over which compresses of linen were put, and the whole secured by a roller applied in the usual manner. Forty drops of Battley's solution were given. Has vomited once or twice after the operation, but all the urgent symptoms were relieved. In the evening the bowels were moved.

9th.—Doing well; no sickness. Beef-tea, milk, tea.

10th.—The dressings were removed, and the edges of the wound found to have united beautifully.

11th.—There is a little redness on the edges of the wound, and they appear as if they would separate; a little discharge from one part.

12th.—The edges have separated nearly the whole length, and I can see a funnel-shaped depression, with granulating sides, being the inverted sac. She was allowed some wine and a more liberal diet.

From this time the case progressed uninterruptedly; the wound filled up and healed, and a pad was kept on the part to retain it in position until the parts became consolidated. She was discharged cured, and had a truss applied. I saw her some months after, and the part appeared consolidating. She was wearing the truss, and there was no hernial protrusion. I again visited this patient twelve months after the operation; the parts had become quite consolidated, and there was no hernial protrusion.

I am not aware that this plan of permanently closing the opening, and thus radically curing femoral hernia, has ever been done or suggested before. It appears to me so easy and natural a proceeding, and one attended with so little danger, that I trust the publication of this case may induce others to try this plan of operating. It may, however, happen that I am here recording what has long ago been done by others, though I have never found any notice of such an operation.

Shrewsbury, November 29th, 1870.

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SKIN-GRAFTING.

By R. W. Goldie,

Assistant-Surgeon, Ghorlton Union Hospitals.

Eight out of ten of the ulcers met with in every-day life, when subjected to the most ordinary remedies, rapidly get well. Of these remedies I may instance the following as among the chief—viz., rest, cleanliness, and caustic. The ninth ulcer will require for its cure appliances of a more powerful description, such as strong nitric acid, strapping skilfully and carefully applied, &c. &c., in addition to internal remedies and diet suited to the constitutional requirements and general condition of the patient.

The tenth ulcer—of which class there are, happily, few—will resist every known method of treatment, although persevered with for a great number of years, under the most favorable circumstances alike for surgeon and patient. It is for cases of this last description that skin-grafting promises at present to do so much, and it is because I have under my care at the present time an ulcer whose duration, position on leg, and antecedent treatment fully warrant me in calling it an *incurable ulcer*, that I venture to submit the following particulars of the case.

Lawrence D——, aged fifty-five, was admitted Oct. 15th, having an ulcer, somewhat club-shaped, situated in the front and lower part of the leg, eight inches long and ranging from two to four inches in breadth. He states that he injured his leg by falling against the sharp edge of a bucket twenty-eight years ago. He was treated for this and recovered; but eight years afterwards—i. e., in 1850—he again injured his leg in the same situation, since which time, although he has been treated in many institutions, including this one, he has received but little benefit up to the present. With such a history I felt it would be but idle waste of time to try any of the usual remedies in this case, and accordingly set about procuring a healthy surface for the purpose of grafting.

On Oct. 22nd I transplanted from the skin of the back of the upper arm three small pieces each the size of a pea, and bound them to the granulating surface with ordinary soap plaster. Ordered water dressing during the day, and zinc ointment at night, to be applied to the uncovered portions of the ulcer, with a bandage over all.

25th.—On removing the plaster, I found all three adhering; the bits of skin no longer looked white, but were of a reddish-blue color, and elevated in the centre. Ulcer dressed as before.

In this, as in some of my other cases, no change took place for seven or eight days—the portions remaining perfectly visible in all my cases during this period,—when they rapidly began to increase in circumference, the margin of the ulcer also closing in with almost equal rapidity.

At the time of writing (16th), the two lower grafts are completely merged in the surrounding cicatrix; the upper one has increased to the size of a florin, and is united in one part to the surrounding new skin; the remainder of the circumference and the margin of the ulcer are almost united.

I may here state that I have of late abandoned the use of scissors, and now employ dressing forceps and bistoury in procuring the grafts. The bistoury cuts more quickly and accurately, therefore less painfully. In my first case I bound the grafts on with colodion; this proved useless, as graft and collodion were floated off by the discharge in twenty-four hours.

In conclusion, the value of Reverdin's discovery does not alone lie in enabling the surgeon to cure what have hitherto proved incurable ulcers, but also in curing them with unprecedented speed.

Manchester, November, 1870.

ON THE

TREATMENT OF PHTHISIS PULMONALIS BY GLYCERINE AND INDIAN HEMP.

By A. Broster, M.D.

I have selected the following case from my Casebook, for the purpose of illustrating the treatment during the various stages of the disease.

Aug. 21st, 1870.—Mrs. J——, aged twenty-seven, a tall, thin woman. She had always enjoyed good health till her marriage, two years and a half ago; had one child, healthy, but pale. Had been suffering from derangement of the liver and phthisis pulmonalis; had expectorated large quantities of matter; had a cough for some time. Had been suffering from diarrhœa more or less for three months, and never could get it stopped. She also had aphthous ulcerations of the mouth and gums about two weeks, and great depression. Was now unable, owing to swelling of the legs, to walk at all. Cold night-perspirations for months, burning of the palms of the hands and feet, and after the same flush as is now present. Chest slightly sunken in both subclavian regions; pectoral fremitus distinctly marked; resonant pectoriloquy distinct on both sides; respiration hurried. Ordered quinine, mercury with chalk, aromatic confection, and conium, in small doses, every four hours, with glycerine, Indian hemp, and stimulants intermediate; beef-tea, milk (fresh from the cow), and nutritious diet; cod-liver oil and iodine rubbed into the chest night and morning, and to wear flannel next to the skin.

Aug. 23rd.—Diarrhœa better; respiration less hurried. She considers herself slightly better. All continued.

25th.—This morning the appetite improved; mouth and throat, although troublesome, improved; had a good night; perspirations better; cough and expectoration decreased. To have champagne, stout, and cider for beverage.

26th.—Very much better; bowels much improved; mouth and throat decidedly better. Slept well last night; no perspiration; cough now slight, and also the expectoration. Mixture repeated, with a draught at night containing chlorodyne and decoction of Iceland moss.

27th.—Cold perspiration at night; pulse 92; constricted pain across the forehead. Ordered a pill to be taken every four hours containing three grains of oxide of zinc, with extract of hyoscyamus; the draught repeated at night.

Sept. 1st.—Is better in every respect, excepting that the gums are greatly swollen, she having been out and taken a slight cold. To have hot fomentations, and gargle containing dilute hydrochloric acid and chlorate of potash, with water, to be used three times a day.

12th.—Pulse 70; no perspirations; coughs only occasionally; mouth and throat better. Ordered the following mixture:—Tincture of Indian hemp, two drachms; gum acacia powder, three drachms; glycerine, two drachms; decoction of Iceland moss, eight ounces: an ounce to be taken three times a day.

Oct. 2nd.—Anticipates following her employment. Examined the chest: consolidated patch much decreased. No night-perspirations for some time. Pulse firm and less quick; tongue furred still; conjunctivæ yellow; no cough. Mixture and pills continued.

5th.—Going on well. All continued.

7th.—Still progressing favorably. Wants to leave off medicine. All continued.

9th.—Has left off taking medicine. Vesicular breathing distinct over the lobes of left side. Has been following her employment the last two or three days.

20th.—I have heard she is now doing well; only delicate.

I have under my care at the present time a case of the same kind.

Williton, Dec. 14th, 1870.

ON THE TREATMENT OF CARBUNCLES.

By William Marcet, M.D.

Having on several occasions been called upon to treat carbuncles in our own country, the only means I have found to succeed in arresting this painful and distressing affection is the destruction of the carbuncle in its earliest stage by cauterisation. I question whether it be advisable to prevent the development of the first of a series of carbuncles, as it may be connected with a natural process to rid the body of some morbid substance contained in it; but I would not hesitate to adopt the present treatment for the cure of those which may follow, as boils and carbuncles seldom come single.

The first sign of a carbuncle is usually denoted by a sensation similar to that produced by a slight prick with a pin, occurring when the hand is passed over the affected part. Nothing may be seen yet on the skin, but some few hours later a small vesicle appears, when the pain becomes more acute, and may be caused by the mere contact of the clothes. If the carbuncle be allowed to proceed, say, for twelve hours beyond its very first appearance, it will run its usual course; but its progress may be arrested by the early destruction of the vesicle and its contents by means of the cauterising action of heat. I have adopted many plans to effect this purpose; but the simplest of all, and one which may be considered as always at hand, is the use of an incandescent lucifer-match. The vesicle is to be merely touched, for a fraction of a second, with the red-hot point from five to seven or eight times in succession, when it assumes a dull-whitish appearance from the coagulation of the albumen it contains. The end of a hot wire may also be used. The pain of the operation is really trifling, and it will save from a week to a fortnight's suffering. I have repeatedly applied this form of actual cautery to myself, and shall not hesitate to do so again if necessary.

In general, within four or five hours after the operation, the pain from the incipient carbuncle has in a great measure disappeared, and there is an end to it. It may happen, however, that the carbuncle, at its origin, is deep under the surface of the skin, when no vesicle appears. I have not been so successful with the use of the actual cautery in these cases as in the others; but probably, had the cauterisation been carried deeper, the mischief might have been arrested.

The present treatment suggested itself to me from a consideration of the nature of the vesicle which precedes a carbuncle. This vesicle appeared to me to contain a virus, which was the real cause of the subsequent inflammation, and I concluded that by destroying this virus the carbuncle might be "nipped in the bud." I have tried the local application of nitrate of silver and nitric acid, but they cannot be relied upon, and I fully believe that nothing will act so satisfactorily as the cauterising action of heat.

I may observe that, for the treatment to be successful, it should be applied as soon as possible after the first appearance of the carbuncle. The progress of boils in this country could probably be arrested in the same way, and it might be worth the while to try whether Indian boils might be cured by the present means.

The treatment I am recommending may not be new; but, if such is the case, it is certainly little known; and I hope this will be accepted as my excuse for the present communication.

Harley-street, December, 1870.

ACUTE HEPATIC ABSCESS; EARLY PUNCTURE; RECOVERY.*

By F. W. Knapp, M.D. Edin.

On the 7th July last I was requested to see a young farmer, who had, for some time previous, been engaged in felling trees while the thermometer ranged from 80° F. to 90° F. in the shade. His illness commenced five days previous with pain in the belly, which continued unrelieved by purgation. He now complained of severe colicky pains, inability to lie on the left side, great tenderness over the hepatic region, which was very tumid, the indurated edge of the liver extending two inches below the false ribs, and the right rectus muscle being very tense. There was general fever, with a soft quick pulse of 120, high-colored urine, and a coated tongue. He was treated with calomel and opium, followed by purgatives, and blisters to the side. A certain amount of relief followed, but the swelling increased, and irritative fever kept up.

On the 23rd he had rigors and bilious vomiting. On the 29th the swelling occupied a space extending from a point in the centre of the epigastrium, about two inches from the ensiform cartilage, to the umbilicus, from which it could be traced to the crest of the ilium, and upwards again to the angles of the right false ribs. There was neither discoloration of the skin nor any feeling of fluctuation; but the occasional chills, the sense of throbbing under the ribs, and the persistence of irritative fever, left no doubt on my mind that the patient had a deep-seated abscess in his liver, which, judging by the great enlargement of the organ, threatened to become far too large for recovery if I waited for it to point or burst spontaneously.

An exploring needle was, therefore, pushed deep into the most prominent and painful part of the swelling. No matter followed its withdrawal, but on blowing through the tube over paper a speck was deposited. A straight bistoury was now used, and gave exit to about an ounce and a half of characteristic creamy pus. The patient expressed great relief from the operation, and immediate amendment took place in every respect. Poultices were the only local application; plenty of nourishment was allowed, and iodide of potassium given in sarsaparilla.

By the 30th September (two months only after the operation) his health was perfectly restored; no trace remained of the great hepatic enlargement, and the patient's weight was within a few pounds of its former maximum.

I am desirous of having this case recorded in The Lancet as it is to papers on hepatic abscess published in that journal a few years ago that I am indebted for its fortunate termination; and I doubt not it will interest many brethren whose lot is cast in lands where the formidable disease in question claims many victims.

Sackville, New Brunswick, Oct. 14th, 1870.

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* Dr. Cameron, Deputy Inspector-General of Army Hospitals, has been kind enough to condense and forward this communication.

A CASE OF

IDIOPATHIC TETANUS TREATED BY CHLORAL HYDRATE.

By George Thomson, M.B.

J. S——, twenty years of age, came under my care on the 27th September, after being treated for a week by another practitioner. I found him lying on his back, with slight opisthotonos, unable to open his mouth further than would admit a penny edgeways, the brows knit, corners of mouth slightly drawn up, and the abdominal muscles rigid and hard as a board. The bowels were constipated, having been once slightly opened after repeated doses of purgatives. The urine was very scanty, and voided at long intervals. The pulse 96, and temperature 100° F.

I ordered a draught containing thirty grains of chloral hydrate, with directions to administer beef-tea and brandy after he should awake, and follow by another similar draught.

The patient slept two hours after the first draught, and six after the second, when the opisthotonos was gone, and the patient could open his mouth to let in a pencil-case, and felt much better. Pulse 68, temperature 98·5° F.

The thirty-grain doses were ordered to be continued, along with the beef-tea and brandy, whenever the patient awoke.

Sept. 29th—Patient feels much better, is hungry, and can open his mouth pretty well. Abdominal walls still very rigid. The treatment to be continued, and a purgative draught at night.

30th.—Bowels have moved well, and urine is now coming freely. Pulse 60; temperature 98·5° F. Continue treatment.

Oct. 2nd.—The symptoms seem now to have disappeared, the abdominal walls being relaxed, and bowels opening naturally. Discontinue the chloral draught.

2nd.—About 2 A.M. the jaws came down suddenly on his tongue, and he complained of a feeling as if a cord were drawn up his back. Repeat the draught, with a purgative.

The patient now improved steadily, twice having large and offensive stools with scybala after purgatives, until the 12th October, when the chloral was again discontinued. I ought to mention that the drug gradually lost power, and was increased first to forty-five grain, and then to sixty-grain doses, which last sometimes failed to produce sleep. The patient was now treated by quinine and good diet, and rapidly regained strength. He had, however, several very severe attacks of cramp in the muscles of the calf of the leg for some days after the discontinuance of the chloral.

At the present date (Oct. 31st) the patient is in perfect health. The effect of the chloral in giving comfort and relief from pain to the patient was very noticeable in this case, he frequently begging for his draught. From the 2nd to the 13th October, when he was getting sixty-grain draughts three or four times a day, his appetite continued good and improving, and his bowels latterly moved once or twice in the twenty-four hours.

New Pitsligo, Oct. 31st, 1870.

INTERMITTENT HÆMATURIA.

By W. B. Kesteven, F.R.C.S.

Attention having lately been called to the subject of paroxysmal hæmaturia, I have thought that the following case, which came under my notice some five-and-twenty years ago, in my dispensary practice, might be worth putting on record.

A collector of rags and bones, about thirty years of age, of not very temperate habits, had suffered for some time from general malaise and weakness, with pain in the back and voiding of blood in his urine. His skin was of a sallow complexion, and he had rigors occasionally. My treatment failing to do him any good, I asked the opinion of the late Dr. Humphrey Sandwith, who was then living in London, and was consulting physician to the Holloway and North Islington Dispensary. Looking to the intractability of the case, the existence of rigors, and the aspect of the patient, Dr. Sandwith was led to suspect the presence of malarious influence. We could get no clear history of ague, but quinine was administered with speedy benefit. This patient applied once or twice in subsequent years, with the same symptoms, and with the same result in the matter of treatment. I have long since lost sight of him. So far as I can remember, there was no enlargement of the spleen. This case came under my notice at a time when I was not fully impressed with the importance of microscopical investigation in disease; the blood, therefore, was not examined microscopically, but the presence of albumen was ascertained more than once.

The association of paroxysmal or intermittent hæmaturia with ague, has, I believe, been pointed out by several observers. I have here merely desired to add one more observation of the connexion, and the therapeutic indication deduced therefrom.

Lansdowne-place, Upper Holloway, Dec. 1870.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Procemium.

LONDON HOSPITAL.

A NEW METHOD OF UNITING FLAPS BY DEEP SUTURES.

Mr. Couper, who has for some time past practised Professor Lister's system of antiseptic treatment of wounds with very good results, has, quite recently, combined with it the following means of securing apposition of the deep portions of flaps.

A curved needle, into which is threaded a large carbolised gut ligature, is introduced into the flap, close to its edge, and a short distance from its base; the needle is passed in a semicircular course, transversely to the axis of the limb, immediately beneath the skin, until it emerges at a corresponding point on the opposite side of the flap; the thread is then drawn through to within two or three inches of its end. The needle is next introduced into the other flap, at a point opposite to where it emerged from the first—the point which, as far as can be judged, will correspond to it when the two surfaces are brought into contact,—and is made to travel in a similar transverse semicircular direction, so that in the end it emerges in the one flap at a point opposite and corresponding to the one where it was first introduced into the other, having completed a circular course beneath the skin of the two flaps. The ends of the suture are drawn until the flaps are brought into accurate contact (much as the mouth of a bag is closed by drawing the ends of a circular string), and knotted and cut off short. If the flaps are long, another suture is passed parallel to the first, a little further from their bases; and when the skin edges have been secured with another suture, the one or more circular ones, knot and all, are completely included and shut out of sight. Before the external suture is quite secured, a syringe is insinuated between the flaps at the spot which remains open, and a jet of carbolised fluid is injected to ascertain whether there remains sufficient egress for any fluid that may be poured out from the wounded surfaces. In the first cases Mr. Couper employed for the external suture a fine gut thread, which he tied interruptedly, so as to have an abundant opening for discharges; but, as he found it to give way before sufficient union had taken place, he has resorted to the use of metal sutures; and, as the precaution he employed for the free discharge of matter proved to be unnecessary, he has used iron wire in his latter cases, and applied it in a very close uninterrupted stitch, which is made to include the skin only.

A few days since we saw a case in which Mr. Hutchinson had amputated the forearm at about the middle, and in which Mr. Couper had, at the operator's request, undertaken to bring the flaps together in the manner above described, with all the precautions of Lister's system of dressing. It was the ninth day since the operation; the situation of the union of the flaps was indicated by a thin line of dried sanguineous matter, altered in color by the carbolic dressing, beneath which lay the finely stitched continuous suture, which, as nothing but the extreme edge of the skin had been included, would, in the course of two or three days more, cut its own way through, and separate itself without external aid. We ascertained that, with the exception of a very slight serous oozing during the first twenty-four hours, no discharge whatever had been thrown out; nor has there been in any of Mr. Couper's later cases which have been similarly treated. In some cases he finds it useful to employ in addition one or two gut sutures, inserted by transfixion of the flaps, and tied externally. These wither in the course of two or three days, at the point where they enter the skin; and when brushed away leave a small red cicatrix of about the same diameter as the suture employed.

HOSPITAL FOR CONSUMPTION, BROMPTON.

PNEUMOTHORAX; PARACENTESIS; ACUTE TUBERCULOSIS.

(Under the care of Dr. Reginald Thompson.)

The following case has some points of interest, not only on account of the relief afforded by a simple operation, but also as an instance of very rapid invasion of tubercle, which in all probability began and ended in the space of four weeks. For the notes and careful observations of this case acknowledgments are due to Mr. Bartlett, the senior clinical assistant to the hospital.

Dr. Thompson observes that paracentesis was resorted to on account of the evident symptoms of severe pressure within the chest, doubtless aggravated by the absence of any communication through the lung with the outer air. Relief was undoubtedly afforded, and he would certainly resort to the same operation if a similar case presented itself.

George B——, aged twenty, had been strong and healthy until eighteen months before admission. He had at that date caught a cold, which was followed by a cough, and in six weeks by a severe attack of hæmoptysis. Some time afterwards he applied as an out-patient, and Dr. Powell, who examined him, found signs of a vomica at the apex of the left lung. On questioning the patient closely, it was ascertained that he had been much worse, and had suffered from dyspnœa for two weeks before admission. When admitted he was in a state of extreme collapse; his face was pinched and blue, the extremities very cold, the pulse 140, and the respiration hurried, 40.

He was examined the following day, when the condition of pneumothorax was ascertained. The heart was pushed far over to the right side, and was beating above the right nipple, the apex being situated close under the right edge of the sternum between the fifth and sixth ribs. The right lung was little, if at all, affected; the breathing was harsh, but there was no reason to believe that tubercle was present in it at the time. The left side of the chest was much bulged, and there was no depression of the intercostal space on inspiration. No air was heard to pass into or out of this side, and it was evident that the opening which had existed was now closed. There was also very little fluid in the chest. From the condition of the heart, and the bulging of the chest, it was obvious that considerable pressure was exerted by the air in the chest, and it was therefore determined, after a consultation, to puncture the chest. This was done by Mr. Bartlett in the usual place, and the air passed out with a rush. The patient expressed himself as much relieved by the operation; the respiration became fuller and less hurried, and the pain of tension, which had been caused by the presence of air, was mitigated. In the evening, the patient could turn on his left side, and his breathing and cough were much relieved. His temperature was 101·4° F.; his pulse 120; his respiration 30. He was ordered half a grain of opium every three hours.

The next day he had slept well, and was free from pain; his breathing was no longer hurried, and his face was not blue; his morning temperature was 100·6°, his pulse 120, and the respiration 30; in the evening his temperature was 100°. Two days after paracentesis had been performed the following observations were made:—Morning temperature 99°, pulse 100, respiration 24; evening temperature 99·8°. On the third day he suffered a little from flatulent dyspepsia, but he had passed a good night. He was ordered one grain of opium at bedtime. The morning temperature was 98°, pulse 100, respiration 24; evening temperature 100°. On the fourth day the morning temperature was 98°, the pulse 100, and the respiration 24; evening temperature 99°.

The patient remained much in the same condition until the beginning of November, when, thirteen days after the operation, it was found that the right lung was becoming involved, and crepitations were heard over the lower part of the lung posteriorly. His temperature was 99°; the pulse 108; the respiration 32.

The symptoms led to the conclusion that acute tuberculosis was setting in, and this opinion was ultimately confirmed. The temperature varied between 99° and 101°; the pulse beating 110 per minute; the respiration became much more rapid; and, in spite of all that could be done, the patient wasted rapidly, and gradually sank, dying thirty-five days after admission.

The necropsy was made by Mr. Bartlett. The body was extremely emaciated. The left side of the thorax contained about a pint of fluid. The left lung was collapsed, and adherent to the back and upper part of the chest. The pleura was much thickened. At the apex of this lung were found two small vomicæ, and yellow cheesy patches of tubercle, varying in size from a pin's head to a small pea. No communication with the pleural cavity could be discovered, although careful search was made. Throughout the right lung grey miliary tubercles were found scattered. The peritoneum was thin and transparent, but the vessels were much injected, and the membrane was studded throughout with specks of miliary tubercle, which were distributed quite irrespectively of the vessels. The other organs were healthy. The pressure from within, previous to opening the chest, had been ascertained, by means of the apparatus suggested by Dr. Powell, to be equivalent to 1¼ in. of water.

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MOORFIELDS OPHTHALMIC HOSPITAL.

PARALYSIS OF THE CILIARY MUSCLE FROM DIPHTHERIA.

(Cases under the care of Mr. Hutchinson.)

Amongst the curious examples of the manner in which what are called specialisms interlace with general practice, we have the forms of diphtheritic paralysis of the eye. Although for long there has been no epidemic of diphtheria in London, yet the continued sporadic occurrence of this peculiar malady is as well proven by the practice of the eye hospitals as it could be in any other department. We publish this week, from notes supplied to us by Mr. Nettleship, one of Mr. Hutchinson's clinical assistants at Moorfield's, three of the most recent cases observed there. We are informed that it is rare for six months to pass over without two or three of these cases being recognised; and, as this average concerns the practice of only one of the surgeons, the total for the whole staff must be considerable. The cases are very peculiar, and are usually easy of diagnosis. The patient is almost always a child, and the defect of sight complained of has come on suddenly, and consists usually of inability to read. Sometimes, when the child's sight for distant objects has not been tested, the utmost anxiety is expressed, in the belief that the defect amounts almost to blindness. The ability to see well at a distance, and to read with the assistance of a strong glass, at once establishes the fact that the only disease is a paralysis of the muscle of accommodation. From this discovery, the next step to the inference that diphtheria must have been present is a very safe one, for no other malady produces this condition. On inquiry, it is usual to find that the child has had a month ago a sore-throat, perhaps not a very bad one; and not unfrequently there is a statement that its brothers and sisters had at the same time much more severe symptoms, whilst they have escaped the paralysis. The defect of sight never follows the sore-throat immediately, but always after convalescence has seemed to be established. The prognosis is always good, and in a month or six weeks the sight is again perfect.

Case 1. *Paralysis of accomodation after sore-throat, with symptoms of diphtheria.*—Ann E——, aged seven years, was admitted under Mr. Hutchinson's care at the Royal London Ophthalmic Hospital, June 30th, 1870, on account of dimness of sight. Her sight had failed for about two weeks; she had found that she could not read. Her vision was fair (20–30) for distance, but very defective (14 J.) for reading; with a weak convex glass she could see 20–20, thus showing that she was a little hypermetropic, while she required convex 11 in order to read 1 J. (brilliant.) Her pupils acted well to light. Her urine was pale, clear, and contained no albumen. Her mother stated that about six weeks previously the patient sickened after feeling very cold (probably a rigor). She was very languid and weak, and lost her appetite, and she then suffered from a bad sore-throat and swelling of the glands under the jaw. She was ill about two weeks. There was no history of contagion, but the mother said that scarlet fever was very prevalent in the neighborhood of her home. The patient had never had scarlet fever.

Case 2. *Paralysis of accomodation after sore-throat (diphtheritic); no history of contagion.*—Ellen L——, aged fourteen, applied at the Royal London Ophthalmic Hospital, on November 10th, 1870, complaining of dimness of sight; this symptom had been present about five weeks. On examining her it was found that she could see perfectly (20–20) in the distance, but that for reading her vision was very defective (12 J. at 12 inches); her pupils acted well. Her mother stated that, seven weeks before, the child had been taken ill with some shivering, followed by sore-throat, swelling under the jaw, and great bodily weakness. She had had no rash. Her sight began to fail about a fortnight after the sore-throat came on, and at the same time it was noticed that she spoke "through her nose," and that liquids sometimes returned through the nose, instead of being swallowed. No history of scarlet fever or of sore-throat in other members of the family, or acquaintances, could be obtained. She had not had scarlet fever. She took quinine mixture, and was quite well in a fortnight.

Case 3. *Paralysis of accomodation after ulcerated throat (diphtheritic); history of contagion.* William John R——, aged eight years, a pale weakly child, was admitted on December 1st, complaining of imperfect vision. His mother stated that he had been complaining of his sight for about three weeks. His vision was very imperfect, both for distant objects (20–100), and for reading (18 J.); it was found that he was highly hypermetropic (requiring convex 6 in order to see 20–30), but that he had failure of accommodation also, for he required convex 4 in order to read 1 J. (brilliant) at ten inches. His pupils were not dilated. The history obtained was to the effect that five weeks previously he had had an ulcerated sore-throat, his neck had swelled, and he had been very weak; his mother also stated that "a sort of skin of yellow matter" came away from his throat. There had been no symptoms of paralysis of the soft palate. He had not had scarlet fever. On admission his urine contained no albumen. Two weeks before the patient's illness his younger brother, aged four years, had a somewhat similar attack of ulcerated throat; he had not had scarlet fever. Lastly, about ten days earlier still, an aunt of the children, who had just before come up from the country on a visit, had an ulcerated throat; this aunt was believed to have had scarlet fever in childhood.

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ST. MARY'S HOSPITAL.

THE TREATMENT OF ACUTE TONSILLITIS WITH BELLADONNA.

(Under the care of Dr. Hanfield Jones.)

Although many of the standard works on medicine and therapeutics omit to make any mention of the value of full doses of belladonna as a remedy in severe simple tonsillitis, its employment in this affection is not by any means novel. The following is a case in which its use was followed by a speedy recovery.

A. C——, aged eighteen, had been ill for three or four days with severe left tonsillitis. On admission, the left tonsil and the adjacent arch were found to be much swollen and very red. The inflamed parts had been scarified with some relief, but the formation of abscess seemed to be imminent. The pulse was 100, rather weak; the temperature 100·4°. Five grains of calomel and an aperient draught were administered shortly after admission. When Dr. Jones saw the patient, he ordered twenty drops of the official tincture of belladonna to be taken in half an ounce of water every two hours. On the second day after admission the voice was much improved, and the patient had less difficulty in swallowing. On the fourth day the patient had slept soundly during the whole of the previous night; the pulse was natural, the swelling had much subsided, and she was free from all distress. On the eleventh day the tonsil appeared to the eye to be quite natural; but when felt from the neck it still seemed to be somewhat enlarged. With the exception of four-and-twenty hours, during which the doses were given every four hours, the belladonna was taken every two hours until the fourth day; the frequency of the dose was then reduced to every four hours until the sixth day, when the treatment was discontinued. It will be seen that while the dose was repeated every two hours, belladonna was being taken at a rate of about ten grains of the extract in every twenty-four hours, though some deduction must be made for doses omitted at night, especially towards the close of the treatment. Nevertheless, neither in this case, nor in numerous others in which large doses of the drug have been prescribed by Dr. Jones for the same affection, had any toxic effect been observed to follow.

Dr. Jones considers that this medication is more appropriate where the tonsils are acutely inflamed than in those cases where there is general inflammation of the fauces, without special affection of the tonsils. In the latter case he thinks that either iodide of potassium or the solution of sesquichloride of iron, according to the quality and stage of the inflammation, is preferable; and though he often combines with the belladonna a little quinine, or sulphate of magnesia, or an emetic, according to the indications of the case, and sometimes the use of steam, or a blister applied externally to the neck, he feels justified in maintaining that the success which he has attained in the treatment of these cases is not to be attributed so much to these auxiliary measures as to the belladonna. He always gives directions that the administration of the remedy shall be slackened as soon as the throat symptoms are materially relieved, or on the production of any toxic effect.

Dr. Jones does not pretend to decide whether the remedy operates by producing constriction of the arteries, or by a direct sedative effect on the elements of the affected tissue; but he proposes that, if further observation should confirm its value in acute tonsillitis, the patient should be saved the regularly recurring pain of swallowing doses of medicine, by reducing the preparation of the drug to the smallest possible bulk, or by injecting it subcutaneously in the form of atropine

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ST. BARTHOLOMEW'S HOSPITAL.

CLINICAL REMARKS ON STRICTURE OF THE ŒSOPHAGUS.

(By Mr. Paget.)

Two cases of stricture of the œsophagus, produced by the action of corrosive fluids which had been swallowed some time previously, came recently under the care of Mr. Paget, and remained for a time in his wards, while, to prevent ultimate closure of the tube, the patients were instructed in the art of passing bougies through the strictured portions.

With reference to these cases Mr. Paget made some interesting remarks on the diagnosis and treatment of stricture of the œsophagus, in the course of which he explained his views of that particular form of stricture which is usually denominated "hysteric" or "spasmodic." It was, he said, the homologue in the pharynx or œsophagus of that want of harmony between the organs of speech and respiration which produces stammering; and appeared to depend on a want of perfect concert between certain involuntary muscles and muscles under the control of the will, which are designed to act in harmony. In the latter case the muscles of respiration do not act in time and unison with the organs of speech; in the former, instead of the normal contraction of successive portions of the upper part of the alimentary tract from above downwards, which transmits the food regularly from the mouth to the stomach, there occurs an unruly contraction of certain fibres, which, as long as it continues, bars the passage of food as completely as if some permanent obstruction existed. The degree of this contraction varied in different cases: in some it only compelled the patient to take his meals apart, or inconvenienced him whenever his attention was in any way directed to the act of swallowing; while, in others, it produced contraction so obstinate and complete that the maintenance of life by means of gastric digestion was wholly prevented. In these extreme cases recourse must be had to enemata; and, as in all other cases where nutritive materials have to be supplied to the body for more than three or four days by the introduction of food into the rectum, it would be found necessary to make use of something more than beef-tea and brandy, and, by injecting preparations containing fats, starches, sugars, and vegetable as well as meat juices, to supply all the ingredients which are contained in a natural diet, and are essential to the building up of the various tissues of the body. Of the fact that vegetable juices could thus be effectually introduced into the system, he had recently had very satisfactory proof in the case of a patient with whose nutritive enemata had been mixed some of the essence of water-cresses, proposed by Mr. Wyatt: at the end of a few days the patient had begged that the quantity of the essence might be diminished, because the flavor of that vegetable in his mouth had become so strong and so constant as to be extremely disagreeable.

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Provincial Hospital Reports.

BRISTOL GENERAL HOSPITAL.

TWO CASES OF VIOLENT DELIRIUM TREMENS TREATED BY LARGE DOSES OF HYDRATE OF CHLORAL; RECOVERY.

(Under the care of Mr. Landsdown.)

The following two cases, forwarded to us by Mr. Nelson A. Dobson, the house-surgeon, are instances of very decided beneficial effects following the bold administration of chloral hydrate, in patients in whom the dangers of violent delirium tremens were increased by the presence of serious local injury.

J. P——, aged forty-one, a publican, was admitted with a compound fracture of the tibia and fibula, at the middle third, with considerable displacement of bone. The leg was placed on a Cline's splint, and dressed with carbolic plaster. The patient habitually took a large quantity of beer, and confessed also to a weakness for spirits. He was put on milk diet, with two ounces of whisky daily. During the third day after admission it was observed that his manner was strange, and about midnight the house-surgeon found him swinging his leg about as if nothing were amiss with it, furiously delirious, and behaving with violence to everyone who approached him. To keep him in bed it was found necessary to secure him in a strait-jacket. Thirty drops of the liquor morphiæ were administered hypodermically, but produced no effect. He continued to rave all night. The following day he was somewhat quieter in the morning, but still very noisy. Towards midday he became much worse, and at 3 P.M. a drachm of hydrate of chloral was administered in half a glass of porter; this made him drowsy for a minute, but nothing more. At 3.30 another drachm of chloral was given with more success, for in a short time he fell into a sound sleep, which lasted two hours; when he awoke he was somewhat less furious. Towards evening the delirium again increased, and the dose of chloral was repeated. He passed a good night, sleeping for several hours. On the fifth day he was much better; he had slight confusion of ideas, but no delirium; in the evening he was rational. The drachm of chloral repeated. From that date he progressed uninterruptedly well, both as regards his mental condition and the fracture.

The second case was that of S. A——, a female, aged fifty-seven. She was admitted with simple fracture of tibia and fibula. This patient had been in the habit of taking large quantities of beer. She was ordered milk diet, and the leg was put up on a short outside splint. She appeared quite comfortable up to the third day; then, in the morning, she became restless and excited, and answered questions irrelevantly. Mr. Landsdown ordered thirty grains of hydrate of chloral immediately. After this her excitement increased, and at 8 P.M. she was furious—if possible, more violent in her language and actions than was the above-mentioned patient. She then took a drachm of the hydrate of chloral without effect; at 8.30 P.M. the dose was repeated in porter, the patient having a partiality for that beverage. This second dose did not absolutely quiet her, and at 9 P.M. the house-surgeon, wishing to repeat it, was obliged to mix it with an enema of four ounces of beef-tea, as she had become suspicious of drinks. This finally quieted her, and when she was seen later in the evening she was in a deep sleep, breathing heavily, but presenting no cause for alarm. On the fourth day she was found free from delirium, but facetious and jocular, and to prevent a fresh accession of the violent symptoms, another drachm of chloral was given at 11 A.M. In the evening she was perfectly rational, but restless, and begged for a "sleeping-draught," which was given in the shape of another drachm of the chloral hydrate. There was no further trouble with this patient.

With reference to these cases Mr. Dobson points out that the man took on the first day three drachms of chloral between 3 P.M. and 9 P.M., and that the woman took the same quantity in one hour, in addition to the half-drachm which she had previously taken in the same day. He believes, with Sir Thomas Watson, that "sleep is the great remedy," and adds, "that as soon as it was induced, a cure followed with more safety and celerity than he has ever seen to result from the exhibition of morphia, opium, digitalis, or bromide of potassium."

Medical Societies.

MARCH—APRIL.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

DR. BURROWS, F.R.S., President, in the Chair.

TEMPORARY GLYCOSURIA AS A SEQUEL OF CHOLERA.

BY WILLIAM SEDGWICK, M.R.C.S., L.S.A.

AFTER a brief historical retrospect of the subject, the author remarked that, in studying the character of the urine in cases of cholera, attention should in the first instance be directed to the fact that the first and albuminous urine passed or withdrawn after the usually prolonged suppression of the secretion was usually deficient in urea, and free from sugar; and that the subsequent condition of temporary glycosuria was preceded by the occurrence of a blue coloring matter, which appeared to be intimately associated with saccharine transformation. It was a significant fact that sugar in the urine occurred not, as a rule, in the first urine secreted after a more or less prolonged suppression, but subsequent to the occurrence of albumen; and that whilst there was during the early stage of cholera convalescence a relative deficiency of urea when albumen was present, sugar, on the contrary, was associated with urea in excess. The deficiency of urea which occurred in connexion with the albuminous urine of cholera was the more noticeable from the fact that, as the amount of urine secreted within a given time, after the previously complete suppression of it, was small, the proportion of urea should have been relatively increased, if the development of that organic principle in the system had been uninterrupted; and consequently it might be suggested that, as urea had been found to be one of the best diuretics, the suppression of urine which occurred in cholera and in allied conditions of the system resulting from poison or from disease, admitted of being directly referred to temporary arrest in the formation of that excrementitial product. The production of the blue coloring matter in the urine of patients suffering from cholera was chiefly important from the fact that it was very closely associated with the development of glycosuria; the occurrence of sugar in the urine in such cases appearing to be simply a somewhat later stage in the series of pathological changes which, so far as they affected the urinary secretion, could be traced to one common origin. Attention was directed to the frequency of the occurrence of a blue coloring matter in the urine in a great many other diseases which, like cholera, admitted of being more or less directly referred to the alimentary canal; and it might be suggested as probable that, as sugar had also been found in the same class of cases, those two abnormally increased, if not altogether abnormal, constituents of the urine were due to the same cause, and derived from the same source. In reviewing the pathology of the urine in cholera, the chief facts to which attention should be directed, with reference to the occurrence of glycosuria, were—the suppression of the urinary secretion as a primary result of the disease, with arrested formation of urea; albuminuria, with deficiency of urea; the presence of a blue coloring principle; and, finally, diuresis, with excess of urea and sugar in place of albumen. In the sequence of phenomena there indicated, urea as the essential principle of the urine necessarily occupied the chief position; and the subsequent presence of sugar during the stage of convalescence, when albumen was no longer present in the urine, suggested that the temporary glycosuria of cholera might be due rather to the progress of reparation than of destruction, and that it was, as it were, the result of an excess of restorative effort on the part of the system to repair loss from previous disease. This suggestion derived support from what occurred in diabetic patients during an attack of fever, when sugar in their urine was apt to be replaced by albumen; and by what occurred in the same class of patients during the last agony, when a similarly retrograde course with respect to the pathology of the urine was pursued; for in them also the urine became albuminous, and the sugar disappeared; and it was moreover supported by a large amount of collateral evidence which was almost conclusive in its favor. It would be found useful, in studying the character of the glycosuria which had been observed during convalescence from cholera, to take into consideration the various physiological, pathological, and artificially produced states of the system in which, as in cholera, sugar was commonly present in the urine without giving rise to confirmed diabetes. For temporary glycosuria, like the previous suppression of urine, had no claim to be regarded as an exceptional phenomenon, which was in any way characteristic of cholera; but, on the contrary, it would be found to occur during convalescence from other forms of acute disease, in which it was often associated with the previous development of a blue coloring principle in the urine. It would be found also to occur, apart from disease, as a physiological condition during certain stages of development, and at certain epochs of life. And, finally, that it admitted of being experimentally produced. With reference more especially to the occurrence of temporary glycosuria in the latter class of cases, as a result of sympathetic nerve section, the author remarked that in all experiments of that kind the primary effect produced must be on the vascular system to which the branches of the sympathetic nerve were distributed, and that any effect produced on other parts of the organism must be secondary to that. Consequently, whilst recognising vascular paralysis as the primary result of section of the sympathetic nerve in all parts of the system, it was important to notice that in the secondary results produced no such constant uniformity had been observed, since these were liable to vary according to the locality in which the experiment had been performed. He was of opinion that, with regard to the occurrence of temporary glycosuria as a sequel of cholera, there was no fact in experimental physiology more significant than that observed by Eckhardt in 1867, of the absence of sugar from the urine after section of the splanchnic nerves, which, taken in conjunction with the fact observed by Moreau in 1868, that section of those nerves was followed by an intestinal flux, possessing the same characters as the flux of cholera, indicated very clearly the direction in which the inquiry should be pursued. For when the neuro-paralytic condition of the digestive canal so produced was compared with what occurred after the influence of the central portion of the sympathetic nervous system had been artificially increased by the application of galvanism or electricity to the part during life, as shown in MM. Linati and Caggiati's experiments, it would be found that the results then obtained were essentially opposed to those which followed arrest or diminution of that influence, either from section of the nerves or from cholera.

In conclusion, the author remarked that the temporary glycosuria which had been observed in all the various cases which he had cited might be regarded as a consequence of long-continued and immoderate secretion, consequent on a previous diminution or arrest of the influence of the sympathetic or vaso-motory nervous system, which apparently occupied a position functionally midway between the secretory surface on the one side, and the supply of blood on the other, and thus became the moderator of secretion in virtue of its action as controller of the circulation. From his observations on the subject, he had been led to infer that all secretion was associated with saccharine transformation; and that whilst, on the one hand, an excess of secretion was accompanied by a corresponding excess in the formation of sugar and consequent glycosuria, a moderate exercise of secretory function was, on the other hand, accompanied by a correspondingly moderate formation of sugar, which was not more in amount than could be disposed of in the system; and that it was only when the blood contained sugar in excess from such causes as those which had been already referred to that some of it was, in consequence, eliminated by the kidneys. Consequently, it might be urged that the temporary glycosuria, which occurred as a sequel of cholera, served to show that during reaction from previous collapse there was a temporary excess of restorative effort, and that although, as was well known, an abortive attempt at reaction was in that disease a very common cause of death, yet in those cases of cholera which terminated favorably, and in which glycosuria had been observed to occur during convalescence, the subsequent disappearance of sugar from the urine might be accepted as evidence in favor of the normal balance of organic function having been satisfactorily restored, and that the tendency to excess during recovery from a central arrest of nutrition had ceased.

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MEDICAL SOCIETY OF LONDON.

MR. GAY, President in the Chair.

MR. WEEDEN COOKE detailed a case of a child from whose lip a large Nævus had been removed by the aid of two écraseurs working at either side of the mass. Caustics had altogether failed to diminish or retard its growth.

A discussion followed in reference to the danger of injecting perchloride of iron into nævoid growths, and incidentally tumours and aneurisms. Mr. B. Carter, Dr. Crisp, and Dr. Brunton mentioned instances in which the procedure had been followed by instant death. Mr. Adams mentioned that he had been successful in curing small aneurisms by injecting the iron solution, without an accompanying bad result.

The President closed the discussion by bringing to the recollection of the Fellows the fact that he had, at the instance of Baron Larrey, advocated several years before the practice of curing aneurisms by injection of the perchloride, and he added that he was in the habit of cutting out nævi just as he would any other tumour, and he was pleased with the results.

Mr. Spencer Watson then read a paper "On the Causes of Failure in the Operation for Squint," based upon an analysis of 103 cases of convergent, and 25 cases of divergent, squint. The causes of failure Mr. Watson classified under the following heads:—1. The pathological conditions were misapprehended. It had been thought to be due to mechanical obstruction to the movement of the muscles, or to bands of fascia; but this was an error. In two-thirds of his cases hypermetropia was one of the conditions present; at the same time retinal changes had some influence in determining the permanent character of the squint. 2. The operation failed when improperly used. When there is eccentric fixation from any cause, an apparent squint is seen, and in such cases an operation gives rise to diplopia, and would not benefit, unless the other eye was much impaired in its visual power; or, again, squint may be apparent in cases in which one eye is very much larger than the other, from the presence of progressive myopia in one, and a normal state of the other. The cornea of the smaller eye appears nearer the inner canthus than that of the larger eye —an appearence that may mislead. 3. The tendon may be missed or divided too far from its sclerotic insertion. 4. The after-treatment may be improper, or the patient may object to a second operation, or to necessary glasses, &c. Mr. Watson held that the operation should be avoided or deferred in periodic squint, apparent squint, and squint in very young children who cannot wear glasses, and in brain cases. He further urged the use of the strabismometer, invented by the late Mr. Zachariah Laurence.

Mr. Carter said it was always right to lead the patient to expect two or three operations. In squint from paralysis of the external rectus, division of the internal rectus and faradisation was a good mode of treatment. Squint sometimes arose from a faulty direction of the roots and cones of Jacob's membrane.

Mr. Jabez Hogg thought the eye was often anæmic in squint. Sometimes squint and hypermetropia went together. He still used with satisfaction Dieffenbach's mode of operating.

Mr. Holthouse said he had seen a too free division of the conjunctiva followed by retraction of the caruncle and free granulations. When the internal rectus was divided, vision often so rapidly improved that the nutrition of the eye must have been good.

Mr. Streeter opened a discussion on the value of Belladonna in Nocturnal Incontinence of Urine, by narrating the case of a young lady, aged seventeen, in whom this complaint had been effectually remedied by the drug in the form of tincture, and in five-drop doses. Mr. Streeter thought these cases were common in strumous children, and he had found iodine, set free from iodide of potassium by a feeble acid, as in the spirit of nitrous ether, good, and in some cases in connexion with iron.

Dr. Brunton then read a paper on "Prolapse of the Funis, and its Treatment by the Postural Method." The author reviewed the methods of treatment advocated in obstetric works, and showed that all of them were deficient in applicability, and in good results, compared with the postural method, which was always applicable, the hand being the only instrument required, whilst there was no danger in its employment to the mother, as in version. Out of ten cases treated by this method by Dr. Brunton, in eight the children were born alive, and the death of the children in the two remaining instances was accounted for by special causes, one child being dead before the operation was commenced. The procedure consists in altering the direction of the internal axis or plane, which is downward and backward when the mother lies on her back, and nearly level when she is in the usual obstetric position, by placing the patient on her hands and knees in the attitude of an Eastern worshipper, so that the axis is made to pass backwards and upwards, and under these circumstances the cord can be returned by the hand during the intervals of pain, or by its own weight it slips up beyond the head. When the funis is returned, and the pains bring the head down, the usual position may be assumed by the patient. The author had not seen the postural method described in the manuals of obstetrics except cursorily, and he believed that its more frequent use would tend to diminish the infant mortality from funis presentations.

Dr. Routh said he had heard the late Sir J. Simpson say that the postural method originated with Dr. Hamilton, of Edinburgh, and he (Dr. Routh), was content to use it without assistance from the fingers. In one case convulsions followed the introduction of the hand into the vagina, and here the change of position did all that was needed, and stopped the convulsions.

Mr. Streeter was acquainted with the method as far back as 1842.

Mr. Teevan then read a paper entiled "Practical remarks on Stone, with an analysis of twenty-four cases." Mr. Teevan stated that he had operated on twenty-four patients, twelve boys and twelve men. All the former, and five of the latter were cut, and the remainder lithotritised. All the patients, except two, recovered. One, aged sixty-six, died five weeks after lithotomy, and the other, aged seventy, died suddenly from heart disease, whilst straining in passing a fragment. Lithotrity ought always to be performed where possible, in adults in preference to lithotomy. He had been obliged to resort to lithotomy in the cases stated on account of the great size of the calculi. A large phosphatic stone might be crushed with safety, if the patient was strong and not old. Lithotrity in old men ought to be performed in a number of very short sittings, so as to necessitate only a day's confinement to bed in each week. Lithotomy, as at present practised, was founded on erroneous principles, and was fraught with much injury to the patient, as it usually destroyed his virility by occluding the ejaculatory ducts. Median lithotomy was unjustifiable, for it was attended with the largest mortality, and lacerated the floor of the prostatic urethra. The external incision ought to commence low down in lateral lithotomy, as less vascular parts were wounded thereby, and the stone ought to be extracted through a very free internal incision. The so-called process of dilatation was, in reality, complete rupture and laceration, and ought to be abandoned as unsurgical and dangerous. A very short rectangular staff was best, with a groove continued on the vertical part for one inch. The sound ought to have a beak only half an inch long. The left forefinger was the best instrument for extracting stone from boys, and, in adults, a simple polypus forceps ought to be used. A tube after lithotomy was a gratuitous irritant. Mr. Teevan concluded by exhibiting the various calculi he had removed or crushed.

Mr. Henry Smith said that the facts brought forward by Mr. Teevan tended to upset the present accepted ideas regarding lithotomy.

Dr. Webb, U.S.A., stated that the limited incision was preferred in America, but that he himself liked Mr. Teevan's method better.

Dr. Wiltshire had seen Mr. Teevan cut for stone, and was surprised at the simplicity and celerity of his method.

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PATHOLOGICAL SOCIETY OF LONDON.

Dr. Quain, President, in the Chair.

An interesting case of Pityriasis Pilaris, as described by Devergie, was brought before the notice of the members of the Society by Dr. Tilbury Fox. The patient, a man aged forty-nine, was attacked six months since with pityriasis rubra of the whole surface, the integuments being deeply congested, and subsequently throwing off branny scales, and then lamellar flakes, but without there being any discharge whatever. After a while the skin showed a disposition to return to its natural appearance in certain parts, especially about the belly, the back, the shoulders, and upper arms, and here all that now remains is plugging of the hair-follicles by little masses of epithelial cells, so as to give rise to the appearance of the skin being studded all over with little pale-red or white elevations, the size of pin-heads, whilst the integuments have the feel of a rasp on passing the hand over them. In the other parts of the body the appearances were those of pityriasis rubra. Dr. Tilbury Fox explained the difference between this condition of things and lichen ruber and psoriasis, and stated that the case bore out the truth of the description given by Devergie.

Dr. Greenhow showed the Spinal Cord from a case of locomotor ataxy, under observation five years, in an epileptic patient, aged fifty-seven, who had been subject also to delirium tremens and rheumatic fever. When first seen the patient had a staggering and unsteady gait, pain in the lower limbs of a recurrent character, having shocks for hours at a time in one place, at other times the pain would suddenly appear at a different part. The pupils were contracted, the focal distances of the eyes different, ophthalmoscopically the optic discs were pale; the special senses were disordered; the general sensibility impaired; the reflex function heightened. The urine contained pus, and hæmaturia was occasionally observed, and for some time before death the patient could not move or raise himself in bed by his own unaided efforts. At the post-mortem the left kidney was pyelitic, the bladder inflamed, thickened, and congested. The skull-cap was thickened, as was the arachnoid, which also contained an excess of fluid. The brain was healthy. The spinal cord was small; its texture was firm, and on section this was more apparent in the posterior column, which was infiltrated by a semi-transparent tissue. Microscopically the nerve matter was seen to be replaced by a new fibro-cellular tissue, and many amyloid bodies were observed to be present. The arteries were hypertrophied. The posterior roots of the nerves were thickly studded over with corpora amylacea. In the antero-lateral columns of the dorsal region the superficial layers of the cord were similarly affected. The degeneration of the cord was less marked in passing from below upwards. There was no change observed about the optic nerve and commissure, save hypertrophy of the vessels. The nerves of special sense could not be examined, as the examination was undertaken with great difficulty.

Dr. Sutton sent round a Fœtus which was supposed to be the subject of congenital small-pox. There were dark-red spots on the skin, and dried-up pustules; and on the liver and lungs yellowish spots of fibroid-looking tissue, which were made up of granular matter, and irregular-shaped cells.

Dr. Murchison said he saw cicatrices in some parts about the body, and if so, they would mean that the small-pox pustules were much more advanced there than at other parts of the face. This and other facts showed that it could not be small-pox.

Dr. Tilbury Fox said there could be no doubt that the disease was syphilitic.

Dr. Heywood Smith exhibited a Diseased Kidney, in connexion with a large calculus in the pelvis. The patient had been admitted into the Hospital for Women some time ago, for a tumour of the left side, which had existed since her childhood, when the stomach was noticed to be unusually large, and the water passed to be thick. The tumour occupied the whole of one side of the abdomen, and was thought to be renal. It fluctuated and was tapped, about 28 ounces of fetid pus escaping. Tapping had been performed before. At the post-mortem the colon was found adherent to the kidney, which weighed 9lb., was enormously increased in size, and contained a large stone in its interior. The liver was enlarged and fatty. The tumour was so large that it could be felt during life per vaginam.

Dr. Dickinson observes that most of the mass seemed to be fat, which was often seen in pyelitic kidneys. He supposed it was the result of the congestion, and was analogous to the increase of fat in some cases of pleuritis.

Mr. Hulke gave a description of three cases of Rodent Ulcer, with accurate drawings of the minute characters of the morbid growth, and wished to know the opinion of the members of the Society as to the cancerous or non-cancerous nature of the disease. In his cases the growth seemed to be a form of connective tissue in which cells predominated. Case 1 was that of a woman aged sixty, who was admitted to hospital in May, 1864, with a large and deep painless ulcer of the chin, 3 by 2 inches, with edges hard and uneven, and dry, browish, exposed bone at its bottom. The related glands were not enlarged; there was slight discharge, and the disease had begun from a wart, which had remained with little change for seven years. Microscopically the disease consisted of an active proliferation of the corpuscular elements of the connective tissue—i.e., cell masses between interlacing fibres. Case 2 was that of a patient seventy years of age, who had a deep rodent ulcer of the face. The disease began as a pimple. In this instance the same structures as in the former case were found with the microscope in the morbid tissue, the cellular elements being very distinct, the cells resembling those of the rete. Case 3 was that of a woman aged sixty-three, with a rodent ulcer of the cheek of several years' duration, and of ordinary characters. The growth was made up principally of cells like those of the rete, intermingled with others near the surface like epidemic cells.

Dr. Tilbury Fox inquired if Mr. Hulke had seen any structure similar to the "globes epidermiques" of epithelial cancer, as observed by Mr. C. H. Moore? He remarked that, clinically, the disease, in its duration and non-implication of the glands, was different from cancer in the ordinary sense of that term.

Mr. Arnott related the particulars of one case in which in the morbid tissue of the ulcer he had seen similar structures to those supposed to be characteristic of epithelial cancer.

Mr. Hulke showed a Carcinomatous Growth from the Lower Jaw, and also a specimen of Fibroma of the Fascia Transversalis Abdominis, which during life caused some doubt as to the diagnosis of the nature of the tumour; but the latter could be completely defined and handled by making the patient bend forward, and it slipped away from the fingers on causing the fascia to be put upon the stretch.

Dr. Murchison exhibited—1. A specimen of Renal Calculus, passed from the right kidney and urinary bladder of a lady, with all the usual symptoms, but where, from the concurrence of a biliary fistula discharging gall-stones, but no bile, through the abdominal parietes, and from other circumstances, there had been reason to suspect, during the weeks which elapsed before the stone escaped, that a biliary calculus had found its way into the right ureter. 2. A Gall-stone passed through a biliary fistula by a lady, whose common bile duct was obstructed and cystic duct patent, so that for several weeks all the bile secreted by the liver escaped by the opening in the abdominal wall, and where, consequently, although the stools contained no trace of bile-pigment, there was scarcely any jaundice, or bile in the urine. The quantity of bile secreted by the liver amounted to nearly two pounds in twenty-four hours. After several weeks the obstruction was removed from the common duct; bile returned to the bowel, and ceased to flow by the fistula, which closed. 3. A large Mediastinal Tumour compressing the bronchial tubes and the large vessels at the base of the heart, from a female, aged twenty-one. The cervical glands were enlarged, and the kidneys contained small masses of similar deposit. In structure the morbid deposits were not cancerous, but exactly corresponded with the tumours exhibited by Dr. Murchison in the last two sessions of the Society, under the designation "lymphadenoma."

Mr. Croft exhibited a specimen of cured Aneurism of the Popliteal Artery, from a patient in whom a thoracic aneurism also existed, and caused fatal hæmorrhage by opening a way into some of the bronchi of the lungs. In the popliteal aneurism, a complete channel existed through the centre of the consolidated clot, so that the channel of the artery had become restored.

OBSTETRICAL SOCIETY OF LONDON.

Dr. Graily Hewitt, President in the Chair.

Mr. J. T. Mitchell read a paper "On a case of Extra-ordinarily Protracted Labour, of more than six day's duration, the consequence of the unrelieved impaction of an immense hydrocephalic head, necessitating craniotomy, which had been too long delayed." The author gave a detailed account of the case, and of the very serious symptoms attending it. He then dwelt on the importance of early delivery in cases of impaction, and drew various conclusions as to the proper course to pursue in cases of this kind. The patient whose case was narrated made a good recovery.

Dr. Barnes read a paper describing a new form of Suture to be used in cases of Cæsarean Section. It was intended not only to close the uterine wound, but to bring and keep it in close apposition to the peritoneum. It was arranged so that it might eventually be withdrawn per vaginam.

Dr. Braxton Hicks thought Dr. Barnes's plan very ingenious, and that it would probably be found preferable to that of drawing out the sutures externally. He (Dr. Hicks), had been the first to recommend the plan, and also to put it into practice in a case described before the Society. Since that it had been advocated in France. So far as his case showed, it appeared satisfactory; for although there was severe vomiting, the contents of the uterus were not extruded into the peritoneal cavity.

A paper was read by Mr. Cullinworth of Manchester, on "A Case of Pelvic Cellulitis, noted with special reference to the Temperature." This paper gave a full account of the case, and contained a carefully recorded thermometrical chart, constructed from observations taken during the progress of the case.

Dr. Wiltshire read a paper on "A Case of Fibro-enchondromatous Tumour complicating Pregnancy." The patient had a hard tumour, about the size of a pudding-basin, springing from the right ilium and parts adjoining, and projecting into the abdominal cavity. The fœtal head being well below the tumour, Dr. Wiltshire decided to let her pregnancy go to full term, when the patient was comfortably delivered of a fine and apparently healthy child, by her natural efforts. The chief points of interest about the case, in addition to the complication of pregnancy by a tumour of such an unusual character, where the missing, for the first time in the patient's life, of two catamenial periods immediately prior to conception, which might have led to deplorable results had premature labour been induced on such data, and the fact that the mother was and had always been in perfect health. Her infant died at the age of seven weeks from congenital syphilis. The paper contained a complete thermometric record of the case, which, Dr. Wiltshire stated, presented a type of the normal thermometrics of the puerperal state—the rise at the advent of lactation, and its fall on the establishment of that process being well marked. Dr. Wiltshire, in some remarks on the pathology of enchondromata, suggested that if cysts were found in them, and it became necessary for obstetric reasons to puncture one or more, it would be well to use a canula of large bore, the contents of such cysts being thick and viscid.

Dr. Martyn thought that a quick pulse and high temperature setting in about the third day pointed rather to puerperal fever than to lactation, and that such a condition depended mostly on offensive lochia. A turgid state of the mammæ might cause some degree of fever, but when the temperature and pulse rise in the degree mentioned by Dr. Wiltshire, it is due to contamination from offensive discharges; such fever might subside quickly, but the injection into the vagina of some disinfectant is the best means of securing this result. He (Dr. Martyn) had endeavored to show, in a paper read at the last meeting, that the fever met with on the third day of childbed, so commonly called milk fever, is always associated with offensive lochia.

Dr. Routh thought that Dr. Wiltshire had given an unusual example of fibroid disease. He was anxious to know if the tumour had enlarged *pari passu* with the uterus. A uterine fibroid generally increased under the impetus of pregnancy, and after delivery again diminished in size, and sometimes became smaller than before. His own experience was that in such cases, about the third or fourth month, miscarriages generally occurred, owing to the interference of the tumour with the due development of the uterus. With regard to the non-presence of syphilis in the mother, although the child and father were affected, Dr. Routh believed that this woman might have had *uterine*, and so it had escaped observation. Indeed, this variety of syphilis was often overlooked, and even when observed the induration of the cervix was often called carcinomatous. The fact of her having secondary symptoms might be due to her strong health. It was well known that syphilitic eruptions and other secondary symptoms often did not appear until the patient's health deteriorated. He could endorse Dr. Martyn's opinion that a pulse of 120 generally indicated incipient puerperal fever. He had often seen cases with great milk-fever one day, and when the secretion was established all the symptoms subsided, and the pulse fell to 80, or even lower; the lochia, carefully observed at the time, giving no indication of anything abnormal.

Dr. Edis said he could endorse Dr. Wiltshire's statement as regards the increase in the frequency of the pulse at the time the milk was distending the mammæ. He had noticed that an initiatory rigor, an acceleration of the pulse, and an increase in the temperature, were by no means infrequent about the end of the second or commencement of the third day after parturition, not explained by any other complication, the pulse and temperature returning to their normal standard as soon as the secretion of milk was established.

Dr. Ballard said that, in reference to the rise in temperature, the feverishness was mainly caused by the irritation which resulted from putting the child to the breast before the milk was secreted. His experience proved to him that this did not occur if sixty hours were allowed to elapse before suckling was commenced. He asked what were the symptoms that indicated that the child was syphilitic? Dr. Wiltshire had only mentioned some spots on the skin, and some snuffling; there were no symptoms of syphilis in the mother, and the child was not cured by mercury. He (Dr. Ballard) thought the indications of infantile syphilis were rather vague. He had been long searching for a specimen of infantile syphilis, but in vain.

Dr. Wiltshire, in reply, said that the child had inherited syphilis from his father. The exaltation of temperature on the third day was no doubt due to the establishment of lactation. In reply to Dr. Routh he said that the tumour, not being uterine, but attached to the pelvic bones, could not be expected to undergo alteration. As the tumour did not extend into the lower pelvis, premature delivery was not called for. The mother had never shown the least symptom of bad health, and therefore could not be supposed to be the subject of syphilitic disease. He, however, assured Dr. Ballard that there could be no doubt of the child being affected with that disease, as it had mucous tubercles, shining spots, snuffles, &c.

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HARVEIAN SOCIETY.

Dr. W. F. Cleveland, President, in the Chair.

Dr. Thomas Ballard read a paper "On Apoplexy," basing his observations upon the records of cases which had occurred under his own observation. Headache, giddiness, and vomiting usually precede insensibility, palsy and death. This was a chain of symptoms which he thought to be well represented by the term apoplexy, the first three to be regarded as the earlier, and the last three as the later stages of the disease. This succession of symptoms occurs alike in both sexes and at all ages. The point of treatment urged was, that for the cases indicated a judicious abstraction of blood was the remedy beyond all others which was useful, and in many cases was the only one required.

Dr. Wynn Williams showed a patient, aged fifty-four, who had an Epithelioma of the lower Lip removed by Mr. Cooper Forster in October, 1869. The disease returned, and Dr. Williams injected it six weeks ago with a solution of bromine, twenty minims to one drachm of rectified spirit. About ten minims were injected into the soft parts on two separate occasions, and the whole mass sloughed out. The slough took fourteen days to come off, and the smell was horribly offensive, but this was relieved by an iodine lotion, three drachms of the tincture to eight ounces of water. The lip was so contracted that a second operation could not have been performed with the knife.

Mr. Fairlie Clarke read a paper on "Surgical Dressings." The author, after touching upon the importance of the subject in its bearings upon surgical practice and "hospitalism," drew a contrast between two methods which are in vogue at the present time—the method of Professor Humphry, who leaves all wounds, as far as possible, entirely uncovered, and the "antiseptic method" as practised by Professor Lister. The author of the paper strongly advocated the use of antiseptic lotions of various kinds, but he thought that the "germ theory" ought to be investigated on its merits as a question apart, and that the use of carbolic acid, chloride of zinc. &c. ought not to depend in any way upon a theory which is still *sub judice*. Mr. Fairlie Clarke insisted upon the need of styptics, prompt and efficient means of arresting the flow of blood, as the most important step towards bringing about immediate union or primary adhesion.

Editorial.

CATARRH.

A great part of the duty and satisfaction of medical practitioners just now has relation to the catarrhal class of diseases. It has made a great impression on the character and amount of weekly mortality, and it constitutes a great part of the practitioner's work. Of late years we have somewhat made light of this department of pathology. Our minds have been so occupied with the zymotic class of diseases, and the diseases connected with foulness or impurity of the atmosphere, that we have been diverted from the study of the diseases produced by cold and wet. As long as we have got air, we have been apt to be careless of the danger of getting too much of it, or of the temperature of it, or the degree of its humidity. And yet, if any general practitioner looks over his list, he will find it to consist very largely of diseases produced by cold, or cold associated with dampness of the atmosphere. We have said that the satisfaction of a practitioner has relation to this class of disease, by which we mean that his comfort will be promoted in proportion to the success with which he relieves it. It is a strange duty that we have to discharge. Catarrh, in one form or another, in such weather, as we have had in the last few weeks, is almost the complement, so to speak, of our climate. It is almost inevitable. And we are called upon to remove it. Medicine has to undo the effects of climate; and it has to do so while climatic conditions are all the while more or less in operation. We purpose saying a few words on this important class of diseases. And, by way of order, we shall arrange what we have to say under two heads. We shall consider first the chronic and secondly the acute forms of catarrhal disease, including pneumonia in the group.

The chronic or subacute cases are by far the most numerous, and the treatment of them gives trouble chiefly from the circumstance mentioned, that our remedies are daily resisted by the condition of the atmosphere. In not a few of the cases the catarrh has its principal seat in the nares, anterior and posterior, and in the ethmoid cells. The constitutional depression incident to this catarrh is less than in most other forms of the disease, but it is still considerable; the discharge soon becomes purulent, and may be somewhat large in quantity. The system under this catarrh is sensibly below par. Light attacks of this kind, constituting a common cold, are, of course, not often objects of medical treatment. But when the attack lingers, when it becomes chronic, it is a considerable ailment, for the relief of which the patient will be very grateful. The persistence of such purulent nasal catarrhs is sometimes significant of a strumous element in the constitution. There are two or three remedies of great use in such states—conspicuously citrate of ammonia in the early stage, and ammonia with bark or quinine and cod-liver oil, to be given separately or in association, in the later stages. Two grains of quinine in a pill twice or thrice a day will often control a tendency to coryza, or nasal catarrh. It is very doubtful whether confinement in the house is beneficial in such cases. Provided that draughts of cold air on parts of the body and wet clothes and wet feet are avoided, free exposure to the open air is beneficial, when it is not very cold or foggy.

Of late, catarrh in many cases has been bronchial in its site; and in a very large proportion only the larger tubes have been affected. The affection has been subacute, with a good deal of cough, some elevation of the temperature, and a whitish tongue; there has been either slight sibilus or mucous râle; or more generally along with these symptoms there has been more or less nasal catarrh, with sneezing. It is noticeable that many entire families are affected in this way; that the general vitality, of children especially, is lowered by the attack. The appetite is lost or impaired, the little patients lose color, and look miserable. In some of the cases, after a few days, a neuralgic tendency is developed, affecting either the ear or the nerves of the teeth. It is the multiplication of cases of this kind that makes medical practice just now laborious and rather depressing. If one meets with a case of acute pneumonia or of uterine hæmorrhage, there is a definiteness about it, and a chance of its being very soon better or worse; but this kind of state, trailing on, as it has a tendency to do, for days or weeks, is often at once irritating and discouraging to the practitioner. There are no specifics for it that we know; but there are remedies the use of which greatly favors the relief of the symptoms and return of health. The cough is a harassing symptom, especially at night, and should be relieved by special means, of which few are more useful for adults than the compound ipecacuan and squill pill of the British Pharmacopœia, taken at bedtime. The relief of the congested state of the mucous membrane, if very dry and accompanied with much heat of skin, will be promoted at first most effectually by a mild saline, such as citrate of potash, accompanied with a little ipecacuan wine. But very soon, often as soon as the practitioner is called in, which generally is not till the case or cases have lasted for several days, the addition of ammonia is indicated by obvious depression of the vital powers, and by the tendency to nocturnal or paroxysmal coughing, or coughing in paroxysms, worst at night. In children ammonia is very beneficial. It should be postponed if there is much elevation of temperature. Throughout, in such cases, it seems better to keep the patient in-doors and in a room comfortably warmed. In the way of external application, at first, and while there is any acuteness in the symptoms, or a feeling of soreness and rawness in the chest, nothing is more beneficial than a linseed poultice or a succession of them. But if there is a tendency to chronicity, stimulating applications to the chest are needed, such as the compound camphor liniment, or, in the case of children, equal parts of this and soap liniment. When the cough has ceased and all subacute symptoms, especially if there be any neurotic or neuralgic element in the case, quinine will be beneficial; but it requires to be given carefully, and at first in small doses. Throughout, nourishing food, in the form of broths or warm milk, where there is no appetite for solid food, is indicated.

We have not referred above particularly to the cases of chronic bronchitis which are so numerous in every winter, and which seem to constitute almost the normal form of senile decay in our climate. The relations of this disease have received some fresh elucidation of late years at the hands of Dr. Headlam Greenhow. He has especially brought forward much clinical evidence to show that people of rheumatic or gouty constitutions are more liable to attacks of bronchitis than others. This is a point that often guides us valuably in treatment. The most important point to remember in the treatment of this disease is the essential tendency to continue and to recur; in other words, to chronicity. In view of this, all depressing treatment is out of place. Great good is done in the treatment of nocturnal cough by such a pill as above mentioned. There are two medicines, in addition to the common expectorants, which in this disease should have the special attention of practitioners—viz., ammonia and dilute nitric acid, according to the varying circumstances of the case. If with a paroxysmal cough, the breathing dry and sibilant, the circulation is languid, the pulse feeble or intermitting, and the weather very cold, a draught of ammonia (in five-grain doses) and senega is likely to be very beneficial, with or without ipecacuanha. If, on the other hand, the ammonia fail to relieve, or the secretion of mucus and pus be excessive, and the weather be not cold and relaxing, dilute nitric acid, in ten-minim doses, with twenty-minim doses of spirits of nitre, in peppermint water, every six hours, will often do the most marked good. Cod-liver oil will frequently afford great help to patients with chronic bronchitis. They say "It does them good." This is especially true in dispensary practice, where, doubtless, it takes the place of food, which is a very essential element of treatment. We shall reserve for another article the more acute diseases caused by cold.

THE CELL MIGRATION THEORY.

In the last number of Professors Humphry and Turner's *Journal of Anatomy and Physiology* is an interesting paper by Dr. Caton, of Liverpool, "On the Cell Migration Theory," which, it appears, was read at the meeting of the British Association in Liverpool in September, and is now for the first time published. Dr. Caton's experiments were conducted in the mode recommended by Dr. Cohnheim, the animals employed being frogs, subjected to the paralysing influence of woorara, and the part examined being the mesentery, in which inflammation was excited by mere exposure to the air. The phenomena observed were—first, a slight dilatation of the vessels, the membrane becoming perceptibly redder to the eye, with increased rapidity of the blood-current. Secondly, after this state had lasted for some time a gradual retardation of the blood-flow was noticed, commencing in the veins and capillaries, and proceeding to complete arrest of the current; whilst the movement in the arteries continued for some time longer, and even after entire stoppage of the flow in the two former orders of vessels the corpuscles continued to oscillate in the latter with each systole and diastole of the heart, and during this period considerable congestion always took place. Thirdly, at the commencement of the observation the white corpuscles were carried along in the general current, in the veins occupying the "lymph space," and moving somewhat slower than the red corpuscles. Soon they became less regularly circular, and showed a tendency to adhere to the walls of the veins; later still large numbers of the white cells were deposited from the stream and covered the surface of the veins, and partially so of the capillaries. When the arterial current became slow, a few were also seen deposited in the arteries. The spontaneous or amœboid movements were now exhibited with considerable activity. And now Dr. Caton makes an observation that may, perhaps, serve to clear up the discrepancy that exists between the supporters and opponents of the view of the escape of the white corpuscles from the vessels; the latter of whom, however, are daily becoming less numerous. He operated, he says, on nearly a dozen frogs in succession without seeing anything further than the phenomena described above, notwithstanding that a very careful watch was maintained on the vessels of the mesentery; but these observations were all made on winter frogs, which are always more or less debilitated, and to some of which also too powerful a dose of woorara had been administered; and no sooner did he proceed to examine healthy and freshly caught vigorous frogs in the late spring than the escape of the white corpuscles through the walls of the smaller veins and capillaries was readily and distinctly seen—the corpuscles thrusting forth processes that penetrated the vascular wall, the corpuscles assuming an hour-glass shape when it was nipped by the wall, and gradually oozing through to the outer surface, where many soon collected. Dr. Caton was unable to observe any cell migration in fishes, but the whole process is carried on with extreme activity in the transparent parts of tadpoles, in which animals it may be observed in the absence of any local inflammation. We think we may add a word of caution against what there now appears to be danger of too freely assuming—namely, that all pus-corpuscles proceed from these escaped white corpuscles. No doubt in all inflammatory foci they furnish a quota of the pus-cells discharged; but it must not be forgotten that Virchow's observations have rendered it all but certain that in the inflammation of mucous membrane—such, for instance, as those of the urethra and of the eye—a large proportion of the corpuscles are derived from imperfectly developed epithelial cells too freely supplied with pabulum; and, again, that there is every reason to believe that in parenchymatous inflammations ending in suppuration the connective-tissue corpuscles participate, and by their proliferation form a portion at least of the pus-cells.

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THE PATHOLOGY OF URÆMIC CONVULSIONS.

In the last part of the "Archives of Gynæcology" there is a paper of considerable importance, on the Pathology of Uræmic Convulsions, by Spiegelberg. According to the views of Frerichs, as is well known, the convulsions occurring in renal disease result from the imperfect excretion of urea; this, accumulating in the blood, becomes decomposed into carbonate of ammonia, which constitutes the exciting cause of the various symptoms observed. Notwithstanding the plausibility of Frerich's explanation, supported as it was by experiments, a reaction set in against it: partly because some observers were unable to discover ammonia in the blood of animals upon which the operation of removing the kidneys had been performed, though there was an excess of urea; and partly from the view maintained by Oppler, that the characters of the convulsions produced by the injection of carbonate of ammonia into the blood were different from those of uræmic poisoning. This reaction at length proceeded so far that, in 1867, Dohrn declared it to be certain that the views of Frerichs were not tenable for all cases of eclampsia, whilst it was more than doubtful whether they could be admitted as expressing the truth in any. Spiegelberg's essay, however, reasserts the claim of Frerichs' views to consideration, and facts are adduced that powerfully support them. In the first place Spiegelberg records the full details of a case of puerperal convulsions. Venesection was performed, and the freshly drawn blood was at once submitted to a rigorous analysis by Dr. Gescheidlen. The result was that a considerable excess of ammonia was demonstrated to be present. At the same time there was a great increase in the amount of urea over that normally present—the quantity in health amounting to 0·016 per cent., whilst in this case it was 0·055 per cent. The urine was albuminous and very deficient in urea; so that, whilst during the convalescence there was 3·8 per cent., during the fits there was only from 1·1 to 1·5 per cent. M. Spiegelberg, in conjunction with Heidenhain, undertook a series of experiments on dogs and rabbits, in which carbonate of ammonia was injected either by the arteries or the veins into the blood; and from these it appeared that conditions precisely analogous to those of the uræmic state were quickly established, the animals in all instances first exhibiting restlessness, then both clonic and tonic convulsions, and finally falling into deep coma. The following is an epitome of the symptoms observed in one of these experiments. At 8 A.M., a cubic centimetre of a 10 per cent. solution of carbonate of ammonia, containing therefore about one grain and a half, was thrown into a large branch of the jugular vein of a dog weighing between 6 lb. and 7 lb. This producing no effect, a second, and then a third and fourth, injection was made at intervals of a few minutes. The blood now contained six grains of the salt; and in the course of fifteen seconds after the last injection, general convulsions occurred, clonic spasms, alternating with trismus and opisthotonos, which lasted about a minute, and then gave way to deep coma. The general sensibility of the body was much reduced; the pulse was intermittent; the respiration 24; the pupils widely dilated and inactive. In the course of about an hour and a half the animal was able again to stand upright. At 11 A.M. the animal was stupid, strongly salivated, and discharging much urine; the pupils were small, and the pulse was 120. A fresh injection produced vomiting, and great irregularity and retardation of the pulse; and still more being thrown in, severe tetanus and clonic spasms ensued, followed by deep coma. After death all the organs were found pale and relaxed, the large vessels alone being filled with dark-red fluid blood. From these experiments and observations Spiegelberg believes himself entitled to maintain, with Frerichs, that uræmic convulsions proceed from the presence of carbonate of ammonia in the blood.

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CONSANGUINEOUS MARRIAGES.

THE subject of consanguineous marriages has recently been once more discussed, from a physiological point of view, by the accomplished naturalist, Mantegazza. The conclusions at which he has arrived (as we learn from the *Echo Belge*), and with which we are by no means disposed to concur unconditionally, are, that although the alliance of relatives in marriage is not necessarily or invariably injurious to the progeny, it is probable that, upon the whole, it is less favorable than the marriage of strangers; and he declares he has in his possession facts that show the result is bad in the proportion of four to one. He acknowledges, however, that this estimate is exaggerated, or at least does not admit of general application. The real cause of the ill-effects upon the health of the progeny, there can be little doubt, is the intensification of any existing proclivity to disease, or, as Mantegazza expresses it, the multiplication of morbid germs of the same kind. But such marriages are shown to be unfavorable, he thinks—and here we are disposed to join issue with him,—quite independently of any hereditary disease, by the frequency with which sterility and abortion occur, and also by the manifestation of diseases in the offspring that have not been previously observed in either branch of the family tree. The observations that have hitherto been made, and with which he is acquainted, though we think there is a lack of reliable evidence on the point, demonstrate that the most serious, frequent, and best-established ill-effects of the marriage of blood-relations are sterility, imperfect conception, abortion, monstrosities, and disposition to certain diseases of the nervous system, in the following order of frequency:—Epilepsy, idiocy, deaf-mutism, paralysis, various cerebral affections, as incomplete development of the intellectual faculties, a susceptibility to moral suffering, the establishment of the scrofulous and tuberculous diathesis, diminished power of resistance to disease and death, great mortality in infancy, a peculiar kind of dysmenorrhœa, attributable to no other cause, and very rebellious to treatment, feebleness in the affairs of life, and, lastly, retinitis pigmentosa. The danger augments for the descendants in proportion to the nearness of relationship between the parents.

But there is also a brighter side to the question. We can imagine a hard-working student, as he follows the graceful movements of some young beauty, who, with the ruddy glow of health on her cheeks, half invites and half repels his attention, saying to himself, "Shall I marry my pretty cousin?" And we opine that, where the cousin is very healthy and very pretty, and where our young friend has not wasted his substance, like the prodigal of old, in riotous living, no harm nor evil will come of it, if his suit be successful—always remembering that the essential points in favor of such an alliance are health and easy circumstances, with the absence of hereditary disease, and especially of scrofula and nervous affections on both sides; and that the chances are better the less similarity there is in physical as well as in moral features between the two parents. According to Mantegazza, the probability of defect in offspring augments with the degree or closeness of *maternal* relationship, so that the danger of marriage between cousins decreases in the following order: marriage between the children of two sisters; marriage between the children of a brother and sister; marriage between the children of two brothers. Two reasons, he considers, explain this law: the first is that, whether for good or evil, we all inherit more from the mother than from the father; and the second—well, the second, let us hope, is an Italian and not an English one—to wit, that everyone is the son of his mother, but not all are sons of their fathers.

Medical Annotations.

"Ne quid nimis."

PROFESSOR TYNDALL.

Professor Tyndall has reappeared as a controversialist in the columns of *The Times*. We have already noticed the letter to that journal which revived the memory of the almost forgotten lecture on Dust and Disease; and, coincidently with our notice, it was sufficiently answered by Dr. Charlton Bastian. To this answer Professor Tyndall has replied, using a certain personality and almost intemperateness of language, very characteristic of insufficiency of fact and argument. He terminates his letter by a declaration that for a long time to come he will not be able to devote any attention to the subject; but this notice of withdrawal from the debate has not saved him from a damaging rejoinder at the hands of his antagonist. Dr. Bastian is, we think, somewhat less skilful than the Professor in the construction of telling sentences; although there is a stinging touch of sarcasm in his suggestion that the brillancy of Pasteur as an experimenter "has doubtless blinded many to his defects as a reasoner." His strength as against Professor Tyndall lies in his mastery of the subject, and in his power to avoid errors into which the eminent physicist has unconsciously fallen. It is probable that the intellect can only be rendered unbiased by the possession of the most complete attainable knowledge, and that men take sides upon all subjects on which their information is incomplete. "The human mind," said Luther, "is like a drunken peasant on horseback: set him up on one side, and he falls over on the other." Professor Tyndall would accurately weigh every element in a problem concerning heat or sound. But when he strays into the tempting fields afforded by the phenomena of life, his caution deserts him, he begins his letters as a partisan, and ends them by being angry. Similar instances are not far to seek. We all know the way in which a distinguished man of letters set himself to teach physiology to physiologists, and the speed with which he sank into an abyss of inaccurate observation and inconclusive reasoning. Macaulay has illustrated the mental state of biographers by describing how Middleton, after destroying the pretensions of half the Romish Calendar, "composed a lying legend in honor of St. Tully." In like manner, Professor Tyndall has elevated Pasteur into an oracle, and describes the "fact and inference" of Professor Lister as "a spot of perfectly firm ground." Dr. Bastian, on the contrary, calls them "a treacherous morass." He does so on the evidence of researches of his own, the details of which have not been fully given to the world.

The time has not yet come for us to form a confident opinion on the profoundly difficult and important question of spontaneous generation. Nor is it at present possible to determine the exact value of Professor Lister's antiseptic treatment, which requires great care and minute trouble in its application. It is to be admitted, on the one hand, that many surgeons have tried and have been disappointed by it; and, on the other, that Professor Lister, Mr. Bickersteth, and others have obtained very remarkable results. It is quite possible that these results have nothing to do with the existence or the destruction of germs; and, apart from germs, the treatment may be good. The surgical question and the physiological are practically distinct. If the question of germs is not, strictly speaking, a surgical one, still less is it one for a physicist. Professor Tyndall appears to promise that he will return to the question at some future time. We hope, if only for the sake of his own reputation, he will by that time have learnt greater caution in traversing a country the landmarks of which are strange to him. Especially do we hope that he will not again publish an account of an elaborate experiment, in a special box half glass and half wood, and with the aid of an electric lamp, for the purpose of showing that suspended motes will sink when the air around them is at rest. We can conceive no nearer approach to taking tea by stratagem than this; unless it were an experiment still more elaborate, to show that the heavier motes would be the first to reach the bottom of the box.

SYPHILIS OF THE NERVOUS SYSTEM.

Our attention was recently called to a paper in the November number of the *New York Medical Journal* upon Syphilitic Affections of the Nervous System. It has since been reprinted in a separate form, and we have received a copy. The subject being one of much importance, we may briefly touch upon some points of practical interest. It is tolerably well known that these affections may arise without any discoverable appreciable lesion. To explain these cases of paralysis *sine materiâ*, many theories have been put forward by pathologists more or less eminent. Dr. E. L. Keyes, the author of the paper to which we are now referring, states that the majority of the autopsies which have shown no lesion were made upon cases where the nervous symptoms appeared at an early period of the malady, although they also occur later. He conceives that the pathology of many cases of paralysis is most correctly accounted for upon the hypothesis of a cerebral congestion, partial or general, analogous to the congestions induced by the syphilitic manifestations on the skin, mucous membranes, conjunctiva, and the syphilitic congestion of the liver. In favor of the probability of congestion of the brain from the poison of syphilis, he cites, as an analogy, the effect of the gouty poison and of urea in the blood in producing a similar effect. In the diagnosis of hemiplegia depending on syphilis, he lays great stress upon a point which has been much overlooked—viz., the relative frequency of its occurrence without loss of consciousness, even when the attack is in other respects apoplectiform. The occurrence of headache, often severe, several weeks before the seizure, and the existence of mydriasis, occurring either in the eye of the affected side or in the other eye, with or without ptosis or paralysis of any of the muscles of the eye, and without any disease of that organ itself, are also dwelt upon. It is the rule for nervous symptoms to relapse, and to become progressively more severe, unless appropriate treatment is interposed. The only remedies of any real avail are mercury and iodide of potass, and the latter has proved itself the remedy *par excellence*, almost miraculous results being sometimes obtained by its administration, of which Dr. Keyes advises us to commence with a dose of twenty or thirty grains, every four or five hours, and pushed rapidly to toleration if necessary. If amendment does not speedily follow the administration of this remedy, mercury ought to be used; and the same may be said in chronic cases of nervous syphilis, when improvement has reached a certain stage, but then ceases to progress. Our readers may peruse for themselves the author's observations on other nervous disorders caused by syphilis, such as paraplegia, epilepsy, and mental affections.

MICROSCOPIC OBJECTS FOUND IN CHOLERA EVACUATIONS.

We have received a copy of the official Report on this subject by Assistant-Surgeon Lewis, M.B., who, it will be remembered, was specially detailed to proceed to India to investigate into the truth or otherwise of the hypothesis which had been put forward by Professor Hallier, of Jena, and others, as to the fungoid origin of cholera, and the theory of the connexion existing between cholera and certain conditions of the soil promulgated by Professor Max von Pettenkofer, of Munich. That Mr. Lewis has displayed the greatest care in studying his subject is clear; and it is equally clear that he possesses the scientific tact and skill necessary to carry out a difficult investigation of this kind. The Report is well done, and admirably illustrated; but the results are, as regards our knowledge of cholera, mainly negative in character. These results, as respects the hypothesis of Professor Hallier, may be summarised as follows:—

That no "cysts" exists in choleraic discharges which are not found under other conditions. That the cysts or "sporangia" of fungi are but very rarely found under any circumstances in alvine discharges. That no special fungus has been developed in cholera stools, the fungus described by Hallier being certainly not confined to such stools. That the still and active conditions of the observed animalculæ are not peculiar to this disease, but may be developed in nitrogenous material even outside the body. That the flakes and corpuscles in rice-water stools do not consist of epithelium, nor of its débris; but that their formation appears to depend upon the effusion of blood-plasma; and that the "peculiar bodies" of Parkes found therewith correspond very closely in their microscopic and chemical characters, as well as in their manifestations of vitality, to the corpuscles which are known to form in such fluids. These are generally, to a greater or less degree, associated with blood-cells, even when the presence of such is not suspected, especially as the disease tends towards a fatal termination, when the latter have been frequently seen to replace the former altogether. Finally, that no sufficient evidence exists for considering that vibriones, and such like organism, prevail to a greater extent in the discharges from persons affected with cholera, than in the discharges of other persons, diseased or healthy; but Mr. Lewis is unable to prove or disprove whether the vibriones, bacteria, and monads (micrococci) are peculiar in their nature, or whether they are able to give origin to peculiar phenomena in a predisposed person.

EMPLOYMENT OF QUININE IN MILITARY SURGERY.

Professor Binz has published the following directions to the surgeons in ordinary of the military hospitals, which may, perhaps, interest some of our readers. "It is generally admitted that the main therapeutic agents on which we can rely to resist unavoidable septicæmic conditions are carbolic acid externally, and quinine internally. In regard to the last remedy, the chief points to be noticed are—1. In the treatment of traumatic septicæmia, the administration of quinine must begin at a period when the disease is commencing, and with this object in view the appearance of the wound must be carefully attended to, the temperature taken twice daily, &c. In doubtful cases quinine should be given as a preventive. 2. The administration of the quinine should be continued for some time beyond the period at which the putrid poison is believed to be completely eliminated. 3. In severe injuries small doses are valueless; at least thirty grains should be given every twenty-four hours, and even with this only a temporary fall in the temperature can be obtained. On some days, and in severe cases, as much as sixty grains are requisite. 4. The administration of the salt in the pulverulent form with spring water is absolutely bad. It easily disorders the healthy stomach, and hinders absorption when the stomach is already disordered, which is so common a condition in all fevers. The hydrochlorate is the most soluble salt, and the most serviceable; a few drops of hydrochloric acid should, in field practice, be added to the sulphate to ensure its ready absorption, and the menstruum should be distilled or rain water. 5. When any objection exists to its being given by the stomach it may be administered as an enema, but the doses must be increased by about a fourth. 6. The action of quinine is most evident if it be given at the time of the spontaneous recession of the fever, and therefore during the first hours of the night; quite early in the morning a full dose is of great value. Attention, however, should always be paid to the condition of the heart, since large doses may act prejudicially by paralysing its motor power. Stimulants given coincidently, as wine and camphor, aid the antiseptic powers of the quinine, and diminish its toxic properties. 7. Care should be taken that the quinine contains at most only a trace of the inactive chinchonine. By attention to these points Professor Binz believes that, though recovery from septicæmic diseases cannot be guaranteed, it may be rendered highly probable."

PETTENKOFER'S THEORY AND THE INDIAN CHOLERA EPIDEMIC OF 1868.

We have on a previous occasion placed before our readers as perspicuously as we could Pettenkofer's views on cholera in relation to soil and ground-water. These views formed one of the subjects which were to be investigated in India by the Cholera Commission. If it could be once demonstrated that cholera had prevailed in an *epidemic* form amid a population residing on a rock, it would follow that Pettenkofer's views would have to be received with some considerable modification. From a Report on the Cholera Epidemic of 1868, by Dr. S. C. Townsend, Sanitary Commissioner for the Central Provinces and Berars, we gather that numerous villages, built upon hard, impervious trap rock, bare of soil, and where no such thing as subsoil water existed, suffered greatly from cholera; indeed, on reference to Table 6, and the map of his report, it would appear that the highest rate of mortality occurred on the trap formation. The conditions of site, soil, substrata, and water-supply that surround the various towns and villages differ considerably in different situations. In the trap formation the villages are situated on the tops of rocky ridges, or on high open plateaus on bare rock and, in fact, Dr. Townsend adds, more dry, healthy sites could scarcely be found anywhere. The conditions of moisture and subsoil water supposed to be necessary to the development of the infecting matter of cholera, are wanting, and the theory of their connexion derives no support from the study of cholera as it prevails in the Provinces of India under report. All things considered, Dr. Townsend thinks that the doctrine which regards the use of polluted water as the principle condition under which cholera manifests itself, receives very strong confirmation, from the facts which he has been able to collect regarding the spread of cholera in the towns and villages of this part of India. With regard to the different forms of water-supply, and their liability to pollution, the open springs and small surface wells, so common in the trap formation, are undoubtedly the worst. The most fatal outbreaks of cholera occurred in villages dependent on this form of water-supply. Dr. Townsend's Report is a very able one, and we may probably return to it.

DYSPEPSIA TREATED WITH RAW MEAT.

So common is dyspepsia that, according to Chomel, a fifth of all his patients were affected with it. Nor is this extraordinary when it is remembered that when the digestive system loses in some degree its vigor and activity, the other functions are irregularly and languidly performed: the reparative materials soon become defective in quantity and quality; the blood becomes poor, loses its plasticity, and circulates through the several tissues without nourishing them; the constitution begins to be profoundly disturbed; and soon upon the primary dyspepsia are grafted gastralgia, anæmia, chlorosis, nervous affections—in a word, every affection that arises from and again reacts in producing a defect of vital resistance. The danger is great unless the treatment be appropriate. What has been held to be appropriate has varied from time to time: now bitters, then tonics, and now again ferruginous compounds. Sometimes alkalies have been regarded as the universal panacea; and more recently pepsine and strychnia have been vaunted as specifics. Still it would appear the really appropriate treatment has to be sought; and our newly established contemporary, the *Echo Belge*, from which we have extracted these remarks, reminds us of the old adage, "*telle nourriture, tel sang,*" and adds that such as is the blood so is the force of resistance to the influence of disease. In all such cases it is of the highest importance to supply the economy in the easiest manner with the largest amount of alimentary materials. With this object in view, uncooked meat is especially indicated, and appears to have been somewhat largely prescribed by the French physicians, though the records of its success are comparatively few. To administer it properly it is necessary to attend to several points. The fillet should be preferred, as being the most delicate and the richest in muscular fibrin. It should be freed with the utmost care from fat and tendon. It should be finely minced, and then brayed in a mortar of wood or stone. When reduced to a paste, it should be covered with sugar, gluten, or vegetable gelatine to overcome the repugnance with which it is at first naturally regarded. Some prefer to squeeze out the juice and swallow it mixed with a little rum or orange-flower water; whilst others again make it into boluses, and take it in slightly warmed beef-tea or soup.

STYPTIC WOOL.

Dr. Ehrle, of Isny, in the interest of his countrymen wounded in the present war, desires to make known a very simple preparation of wool that he has found very serviceable in arresting hæmorrhage after operations or from wounds. To prepare it he boils the finest carded wool for half an hour or an hour in a solution containing four per cent of soda, then thoroughly washes it out in cold spring water, wrings and dries it. The wool is thus effectually purified, and is now capable of imbibing fluids uniformly. It is then to be dipped two or three times in fluid chloride of iron diluted with one-third of water, expressed and dried in a draught of air, but not in the sun or with the aid of high heat; finally it is carded out. Thus prepared, it is of a beautiful yellowish-brown color, and feels like ordinary dry cotton wool. As it is highly hygroscopic, it must be kept dry, and when required to be transported must be packed in caoutchouc or bladder. Charpie may be prepared in a similar manner, but, on account of its coarser texture, is not so effective as cotton wool, presenting a less surface for producing coagulation. When the wool is placed on a bleeding wound, it induces moderate contraction of the tissue, coagulation of the blood that has escaped, and subsequently coagulation of the blood that is contained within the injured vessels, and thus arrests the hæmorrhage. The coagulating power of the chloride of iron is cleary exalted by the extension of its surface that is in this way effected. The application of the prepared wool is not particularly painful, whilst, by sucking up the superfluous discharge and preventing its decomposition, it seems to operate favorably on the progress of the wound. The unpleasant secondary results that have led many practical surgeons to discard the use of the perchloride of iron do not occur with the wool when it is properly made and applied. In cases of wounds where the bleeding proceeds from large and deep seated vessels, it may be used as a compress, a bandage being applied over it, or the wound may be plugged with it. It may also be employed with advantage in cases of profuse suppuration, to imbibe the discharge and purify the surface. He recommends that a small portion should be given to every soldier on going into action.

THE BATH IN THE HOUSE.

MUCH has recently been said and written with a view of encouraging the more extensive use of the bath in this country, and a certain stimulus has been given to its employment as a luxury, especially by the more wealthy, and those upon whose hands time hangs heavily; but we doubt if any real progress has been made in bringing the public generally to perceive the importance of the bath as an everyday measure for preserving health and preventing disease. The deficiency of bath accommodation in modern houses is one of their most striking peculiarities, and there can be no doubt that this is in keeping with the habits of the majority of men and women, who are entire strangers to anything that can be called a thorough daily ablution of the surfaces of their bodies. In practice, cleanliness is estimated rather by the frequency with which their under garments are renewed, than by the removal from the body itself, by means of a liberal allowance of soap and water, of the products which are constantly being thrown off by it. It has been said that the different nations of the world are as much distinguished by progress in cleanliness as by advance in the arts and sciences; and the more a country is civilised, the more its inhabitants cultivate the former part of politeness. It is difficult to trace the connexion between the the two things in our own country; certainly there is no approach with us to the condition of the Romans at the period of their highest civilisation, when, for 500 years, Rome had no physician but the bath; and manly vigor and rude health were felt to be the consequence of the universal practice of bathing. In the city itself, under the emperors, there were more than 800 magnificent buildings devoted to the use of bathers, and Pliny tells us that in some instances the bath was entered as many as seven times a day by the same person.

We have no wish that our countrymen should imitate the extravagant excesses of which the Romans were guilty in the use of basins made of silver and the most precious and rare marbles; but we should hail with satisfaction the development of a greater love for the bath, especially amongst the inhabitants of crowded cities and those who follow sedentary employments, and a more general appreciation by healthy men and women of the promotion of the activity of the skin as one of the most important points to be attended to in their every-day life,—the bath being taken, not as a luxury, but as a means of purifying the vital fluids, of restoring tone to the nervous system, and stimulating the powers of the body for a better performance of physical and mental work. It ought ever to be incumbent upon owners of property to provide suitable—if cheap—bath accommodation in every house that is built.

THE ACTION OF MERCURY ON THE LIVER.

THAT mercury does not stimulate the liver, or increase the flow of bile in any way in health, but tends rather to bring about an opposite result, was the conclusion drawn from a series of experiments on dogs, conducted by a special committee appointed by the British Medical Association. Dr. Hughes Bennett has followed up the investigation which resulted in establishing the above conclusion by the performance of another set of experiments, having for their object the determination of the question whether—as affirmatively asserted—"mercurials possess any specific power of exciting the biliary secretion, by acting on the orifice of the common bile-duct, and so stimulating the secretion, through the nerves which connect it with the liver, just as pyrethrum or vinegar stimulates the salivary glands, when it is applied to the orifices of the salivary ducts." These experiments have led Dr. Bennett to conclude that the drug has no such power. Several mercurial compounds used as medicines were treated in such a way as to approximate their condition to that which they would assume when digested for a while, and then applied to the orifice of the common bile-duct. For instance, blue pill rubbed up with milk was given to a cat, which was killed in an hour afterwards; the contents of the stomach being kept for three hours at a temperature of 100°F. Some of this fluid, portions of digested mixtures of blue pill and milk and rennet, calomel and milk, and corrosive sublimate and milk, were applied to the orifice of the common bile-duct of a chloroformed rabbit at different times, without exciting the escape of bile. The same result followed the application of a mechanical irritant, acetic acid, powdered calomel, bichloride of mercury, and the two poles of an interrupted electric current, to the orifice of the duct, or of the electric current to the gall-bladder itself, or the liver. But one occurrence of practical significance was noted. When the abdominal or thoracic muscles were excited by the induced current, then a free flow of bile from the common duct occurred. Dr. Bennett denies the presence of any muscular coat in the gall-bladder, and the possibility of its being excited to contraction by reflex irritation; and concludes that mercurials are not cholagogues in any sense of the word, neither are substances that irritate the orifice of the bile-duct, but that pressure exerted upon the liver and gall-bladder by the contractions of the surrounding muscles cause the bile to flow into the duodenum; hence the value of exercise in certain bilious complaints.

MILITARY HYGIENE ABROAD.

IT is not a little curious that continental nations should, practically speaking, almost ignore the lessons in military sanitation which wars have taught us, and especially those of modern times. The French and German hospitals were almost invariably overcrowded, and there was not that attention to ventilation that might have been expected. In the case of the *baracke* hospitals, which are, structurally speaking, admirably adapted for the location of the sick and wounded men, the same tendency to overcrowding was exhibited; and we understand that in some cases the intention has been expressed of closing the roof-ventilation, in order to protect the patients against the cold weather. Of course draughts cannot be borne with impunity at this season; but it is not to be doubted that a liberal supply of fresh air is essential to the successful treatment of the wounded. To obviate the effects of cold, fires and warm clothing are required, and it is possible that difficulties in procuring fuel may have compelled the surgeons to diminish the amount of interchange of the inner and outer air. As far as the German military surgeons are concerned, they are fully acquainted with all the facts of military hygiene. Prof. Parkes's work had been translated by them shortly before the present war; and the various articles on "Hospitalism," by the late Sir J. Simpson and other notabilities, that appeared in our own pages were extensively read in Germany. The French have, as a rule, always manifested a fear of "draughts" in their hospital arrangements, to the no little detriment, it is to be feared, of the patients. The losses from pyæmia among the wounded have been very large—not that we are by any means desirous of attributing the prevalence of this disease exclusively to overcrowding or defective ventilation,—and the ratio of deaths to sick treated has probably been also large. The German army, though not so healthy as it was, continues to enjoy the same comparative immunity from any epidemic disease that it has hitherto done. As this cannot be ascribed to any unusual degree of attention to sanitary regulations on their parts, we must suppose that it is due to the fact that the German generals have not unduly taxed their men's physical strength, and that the commisariat has been, upon the whole, good.

EVIDENCE OF DEATH OBTAINED BY THE OPHTHALMOSCOPE.

M. Poncet, of Strasbourg, publishes in the April number of the *Archives Générales* the results of his observations on man and animals, and believes he has succeeded in obtaining a new sign of death from the use of this instrument. He has constructed an ophthalmoscope of a form convenient for application, for the description of which we must refer to the original paper with its accompanying illustrations. In the lower animals, as in the ox and sheep, the cornea loses its transparency with great rapidity, rendering an examination of the fundus difficult, even after a few hours, whilst the epithelial cells become detached with great facility,—constituting tolerably reliable signs of death, though similar conditions have been observed to occur in the cold stage of cholera and in death by asphyxia. In man, however, the opacity is slower in its advent, and when present it may be partially removed by the application of a little water.

On examining the eyes of the human subject, the following were the appearances seen in one instance about seven hours after death: papilla white, pearly, distinctly differentiated in tint from the general fundus of the eye, which was yellowish white, with a slightly rosy hue. Not a single vessel visible at the papilla. At the periphery very small irregular clots were contained in otherwise empty vessels, and these succeeded each other at short intervals. The arteries could not be distinguished from the veins, and the choroidal plexuses were also indistinguishable. Similar appearances presented themselves in other cases. The most important of them all is undoubtedly the disappearance of the retinal artery. Conditions essentially similar are seen in animals after death, the frog being an excellent subject for examination, since so long as life persists the movement of the corpuscles can be perceived.

We ought to add that M. Bouchut has claimed priority of publication in regard to these several signs in a short note addressed to the May number of *Archives Générals de Médecine*, his statements having been made as long ago as 1866.

THE ARMY MEDICAL SERVICE OF THE UNITED STATES.

The *Medical Gazette*, of New York, of the 24th Dec. last, has an article upon the United States Army Medical Department, which is very interesting at the present time. The service must be very popular with young American medical men, for we learn that the applications are ten times more numerous than the appointments to be filled up. It is quite otherwise with the navy, the medical service of which is in great disfavor. Our contemporary says that, although the remuneration of army medical officers is disproportionate to the emoluments of practitioners of similar attainments in civil life, their social relations with other officers are all that could be desired. They are permitted to control their special departments, and in all questions of hygiene, of hospital construction and quarantine, they are invariably consulted. The mean average strength for the fiscal year of the white and colored troops is stated by the Surgeon-General as 32,429 men, with a ratio of 49 per 1000 constantly sick, and a death-rate of 12 per 1000 of mean strength. There was a relatively large mortality from wounds referable to the Indian hostilities. The high rate of mortality is largely due, however, to the bad quarters in barracks and hospitals assigned for the troops. It astonishes us to find, considering the example America has set all other nations in the matter of practical army hygiene, that in the forts of New York harbor soldiers are still stowed away in casements, sleeping in double bunks, and in every way "consigned to conditions at variance with sanitary laws."

DIFFERENCE IN THE MILK OF THE TWO BREASTS OF THE SAME WOMAN.

In one of the last (July) meetings of the Académie des Science, M. Sourdat reported an interesting case of dissimilarity, not only in quantity, which is common, but in the chemical composition of the milk of the two mammæ of a woman. The investigation was undertaken in consequence of the woman stating that her three children had respectively declined to take one breast, and had consequently been exclusively reared by the other. On careful examination, it was found that the whole milk produced, taking both breasts together, varied from day to day without perceptible alteration in the health of the mother. Slight over-exertion, small changes in diet, the period during which the fluid had been stored up in the breast—all produced certain alterations. Thus eight analyses of the mixed milk gave solids varying from 10·10 to 13·70 per cent., the proportion of solids to fluids varying as 1 : 1·35. The specific gravity was also very variable, as 0·980 to 1·031. On examining the milk of the two breasts separately, but drawn at the same period, it was found that the milk of the right breast, which was also by far the most abundant, contained a much larger proportion of solid constituents than that produced by the left, the proportion being as 1·20 : 1 for the minimum, and 1·74 : 1 for the maximum. The quantity of butter produced by the right breast was in proportion to that of the left as 1·50 : 1 for the minimum and as 9 : 1 for the maximum—a difference that as might be supposed, made a considerable variation even in the appearance of the milk. The nitrogenous compounds, casein and albumen, were also far more abundant in the milk of the right breast, the maximum difference being as 1·90 : 1. It was a remarkable circumstance, however, that the soluble substances, sugar and salt, were in precisely equal quantities in the milk of both breasts. Five analyses were made.

THE CHASSEPÔT AND NEEDLE-GUN, AND THEIR RESPECTIVE BULLETS.

At a late meeting of the Medical Society of London, Dr. Thudichum narrated some of his recent experience at the seat of war. Before proceeding to describe the various kinds of injuries sustained by the wounded, he showed to the Fellows the instruments with which these injuries had been inflicted—the Prussian needle-gun, invented by Dreyser, in 1835, and also the French chassepôt gun, which was an improvement on the Prussian arm; the cartridges for use in these guns were also shown. The needle-gun weighed 10 lb. 6 oz., and carried a bullet, weighing 480 grains, that was an inch long, and required a charge of 70 grains of powder. At the highest elevation the range of this gun was 700 yards. The chassepôt gun was lighter than the other, and two-thirds of its bore; it took a charge of 85 grains of powder, and a bullet weighing 380 grains; it was an effective weapon at 1500 yards. After much firing it begins to leak at the breach, and allows windage. Dr. Thudichum noticed the serious nature of the wounds inflicted by the percussion shells, which explode instantly, and give people no time to lie down on the ground. He also spoke of the nature of the wound, varying according to the velocity of the bullet.

TREATMENT OF COMPLICATED FRACTURES BY THE AIR-CUSHION.

Dr. Mason, of Long Island, calls attention, in the last part of the *New York Medical Journal*, to the advantages to be derived from the use of the air- or water-cushion, which, he believes, has not been hitherto utilised in the treatment of complicated fractures. The apparatus, as improved by him, is simple, consisting of a small air-pillow about two feet in length when inflated, rather more than a foot wide, and about eight inches in height. A flexible rubber tube, about two feet in length, inserted into the middle of the side of the cushion, serves to inflate it. A screw valve in the extremity of the tube regulates the supply of air. A piece of spongio-piline, or other suitable material, should be placed on the cushion, and over this a pillow-case to prevent the over-heating and vesication that might arise if the limb were allowed to rest directly upon a rubber surface, and to permit of exchange and removal when discharge occurs. The fractured bones having been placed in position on the partially inflated cushion, it is permitted to rise well up and over the sides of the limb, and firm splints of pasteboard or wood adapted to the outer surface of the cushion, the whole apparatus being retained in position by a roller. In cases where irrigation is required the cushion may be slung by means of three or four bandages to a frame placed over the limb. The plan seems well adapted for cases of fracture with severe contusion, and would prove a valuable addition to field ambulances.

PHYSIOLOGY OF THE PANCREATIC SECRETION.

M. Bernstein gives, in the just published *Arbeiten aus der Physiologischen Anstalt zu Leipzig*, the results of a series of investigations, conducted under the superintendence of C. Ludwig, on the physiology of the pancreatic secretion. In opposition to Claude Bernard, he thinks that perfectly natural, and healthy secretion can be obtained from dogs in which a permanent fistula of one of the ducts has been established; since he found that the fluid thus obtained was able to convert starch into sugar, to emulsify fat, and to digest albumen, or, in other words, to convert it into peptone. He finds, in accordance with previous observers, that the activity of the gland undergoes variations standing in direct relation to the ingestion of food, the quantity of the secretion discharged increasing immediately after food has been taken, and attaining its maximum about two or three hours after a full meal; it then diminishes to the 5–7th hour, when it again augments slightly, and finally falls to zero at the 15th hour. His most important investigation, however, was in reference to the influence of the nerves on the secretion. He found that the production of nausea greatly diminished the flow of the secretion, whilst actual vomiting almost entirely arrested it, the effect lasting for a considerable period. He was thence led to try the effect of irritating mechanically and otherwise the pneumogastric nerve, and believes he has ascertained that any centripetal irritation of this nerve arrests the flow of the pancreatic secretion—that is to say, exerts an inhibitory influence on the activity of the gland.

LE BON DOCTEUR NOIR.

Those of our readers who have followed the able correspondence of the *Daily News* need not be told who was the late Dr. Davis, or why we pay our share of tribute to his memory; but others may not have heard that he was a negro doctor, who has just fallen a victim to his generous devotion to the starving and fever-stricken peasantry of north-eastern France. He was a native of Barbadoes, and, with the exception of a short term of residence at Aberdeen, where he graduated in medicine, he prosecuted his studies at St. Bartholomew's, of which hospital the energy and intelligence with which he worked, and his strongly-pronounced religious opinions, made him a conspicuous student. In October last he resigned a house-physiciancy at that hospital, to give his services to the suffering peasantry in the neighborhood of Sedan, and, armed with funds which had been entrusted to him by some friends in England, he devoted himself with remarkable skill and energy to the treatment of large numbers of sick and wounded, and to the establishment of soup-kitchens at Balan and Pont Maugy, which have given food and life to hundreds of starving peasants. But his enthusiasm carried him beyond his strength, and, returning in an exhausted condition from a short visit to England, where he had been to seek further funds, he was attacked with small-pox, of which he died on the 27th November, at the age of twenty-eight, but not before he had accomplished a noble work, and earned the gratitude of hundreds who owe their lives to his self-sacrifice. For years to come, says the correspondent of our contemporary, pilgrimages will be made to the quiet nook at Fond de Givonne, where lie the remains of *le bon docteur noir*.

HEAD DISEASE AND SCHOOL PUNISHMENT.

We have read the particulars of the inquest on Marmaduke David Llewhellyn, aged eleven years, of the parish of Manorbrei, near Pembroke, and who died of head disease, with a swelling the size of a pigeon's egg on the back of the head, such as would result from a blow or a fall. He came home on March the 24th, and declared that his school-mistress had struck him over the head with a stick. The evidence on this point—that of children of the school—was conflicting and unsatisfactory; but ever since he had complained of his head, and at length died on May 15th. It should be said that so far back as Christmas the boy was attended by Mr. T. H. Newsam, for delicacy, general debility, and occasional headache. This gentleman, who had also attended him in his last illness, said that it was characterised by great headache, the above swelling, nervous excitement, twitchings of the muscles, and partial loss of vision. At the post-mortem there was found a clot of blood on the brain, corresponding to the swelling of the scalp, about the size of half-a-crown. "On opening the lateral ventricles" (we give the words of the newspaper report, because they describe appearances certainly not common) "was found about three or four ounces of pus (corruption)." The verdict was "that death ensued from natural causes (softening of the brain), accelerated by a blow or a fall on the head, but by whom given there is no evidence to show." We approve of the verdict. The report of the post-mortem examination contains no account of tubercles in the meninges, though in such a case we should have expected them. The mistress admitted boxing the boy's ears, and striking him on the shoulders, but denied having ever struck him on the head. The case should be a warning to teachers against striking children, especially if at all delicate. It is quite probable that this boy's illness began about Christmas last. But it would be rather helped than hindered by such treatment as the mistress seems to have applied.

THE ETIOLOGY OF SCARLATINA.

We would earnestly direct the attention of medical observers to the relation between the various kinds of sanitary defect and the origin, course, and spread of scarlatina. The first is a matter of the very deepest moment, and, although the disease spreads for the most part by contagion of a most subtle kind, there are observers who, like a writer in *The Times*, believe that it may rise spontaneously under certain conditions, which, to say the least, have not been well made out. Nevertheless it must be admitted that there are some remarkable cases in which it seems scarcely possible to explain the origin of the disease in any other way; and there are no very valid reasons why scarlatina should not be caused by some peculiar local state of the air, just as typhus results from overcrowding, typhoid from excrement effluvia, or ague from malaria. The difficulty of exact proof may be great, but the accumulation of evidence can alone settle the point. But if such conditions do not cause scarlatina, there can be less difficulty in determining the influence of local sanitary defects on the course of the disease and the virulence of its infection. Nothing is more remarkable than the variety of experience on the first point. Medical men are found who seem to enjoy a peculiar success; they rarely find the disease fatal, and are astonished at the weekly returns of the numbers dying from it, and it may be that their patients suffer only from the milder forms in consequence of the excellence of their sanitary arrangements. On the other hand, there are many who find, on careful research, that the malignancy of the disease has a very close connexion with sanitary defects. Notwithstanding these broad distinctions, it must be acknowledged that the vagaries of scarlatina are extremely puzzling. Cases of a malignant type are found in isolated cottages on heaths far removed from villages, and it is certain that more exact observation is required to trace their origin and history. The present epidemic affords great opportunities for a thorough investigation, and we shall be glad to receive information on the subject.

TREATMENT OF GONORRHŒA WITH TANNIN AND GLYCERINE.

Dr. Schuster states that tannin mixed with glycerine at first form a soft waxy substance, which soon becomes hard and brown, and melts in a moist atmosphere at the temperature of the body. Dr. Schuster has formed small pencils of this compound, which he inserts into the urethra of patients suffering from gonorrhœa. He has found the treatment by means of caustic injections (the abortive method) frequently to fail, and that it occasionally produces violent pain, inflammation, and hæmorrhage. On the other hand, the treatment with slightly astringent solutions cures the gonorrhœa within a period varying from four to seven weeks, but is often followed by a troublesome gleet. The tannin-glycerine rods employed by Dr. Schuster are from three to four inches in length, well rounded at the extremities, and consist of thirty grains of tannin, one grain of powdered opium, and a sufficient quantity of glycerine to form a pastille. These rods are hard in winter, and soft in summer. Before their introduction, they should be dipped in warm water. They are to be left for from five to ten minutes in the urethra, and then withdrawn. As a rule they produce no pain. If, however, they be left in for an hour or for a night, more or less pain is caused, and this appears to be due to a combination occuring between the tannin and the mucus or pus, which becomes hard, and acts like a foreign body. Dr. Schuster has had no case of orchitis following the use of these pencils, though he has thought it advisable to recommend the employment of a suspensory bandage, nor has he noticed any irritation of the bladder or prostate. In cases of gleet a rod may be left in for a few minutes, and a speedy cure usually results.

FUNGOUS FOOD.

There has been a show of fungi at the Horticultural Gardens, which was attended by a large number of visitors. Many of these doubtless learnt for the first time that the swift-growing ephemeral vegetation familiar to them in the autumn woods deserved a very careful recognition, and found that their merits could not be exactly summed up by dividing them into "mushrooms" and "toadstools." According to Badham, there are thirty species of esculent fungi in England. The only kind which we ordinarily eat, the *Agaricus campestris*, is thrown away in Italy as unfit for food; and we, in our turn, kick down and destroy the *Agaricus prunulus*, the most delicious of all, and the kind to which the French title "mousserom" (whence our word "mushroom") was originally applied. Nor does the *Agaricus oreades*, the "champignon," so extensively eaten all over the European continent, fare much better with us. Ninety-nine times out of a hundred it is denounced as a toadstool, and shivered by a blow of a stick, or crushed under heel with disgust. There must be many tons of good, nutritious food thus wasted annually in England, for want of the knowledge to discriminate the esculent from the poisonous fungi. When we remember the weary and profitless lectures often delivered by professors of botany to medical students, it seems very wonderful that no attempt is ever made to enlighten the class upon what would really be useful information—the selection of esculent fungi. If medical men generally were acquainted with the subject, they might readily spread this knowledge throughout the community, and receive the thanks, not only of the poor, who would be the gainers of many a cheap and savory meal, but of the gourmand, whose existing resources for palatal enjoyment would be somewhat largely increased.

SUBSTITUTION OF SALTS COMPOSING THE BONES.

That certain salts entering into the composition of the body can be substituted by others belonging to the same series, if supplied in the food, has been long known. Some good experiments, however, have been made in the course of the past year by M. Papillon, and are recorded in the *Comptes Rendus*. In one of these a young pigeon was dieted on distilled water to which hydrochlorate, carbonate, sulphate, and nitrate of potash were added, and with grain made into a paste with strontia. The bird remained in perfect health for nearly eight months, when it was killed, and an analysis made of its bones, with the following results: In 100 parts there were of lime 46·75, of strontia 8·45, of phosphoric acid 41·80, and of phosphate of magnesia 1·80; residue, 1·10. In a second experiment a white rat ten days old was subjected to a similar regimen, except that phosphate of aluminia was substituted for the strontia given to the pigeon in the proportion of about a grain and a half per diem. The animal remained to all appearance in good health for about six weeks, when it died suddenly in convulsions. An autopsy showed the presence of intense enteritis. Analysis of the bones showed that in 100 parts there were of alum 6·95, and of lime, 41·10 parts. Another animal of the same litter was supplied with phosphate of magnesia instead of phosphate of aluminia, and was killed at the same time. Analysis of its bones showed the presence of magnesia in the following proportions in 100 parts: Magnesia 3·56, lime 46·15. In all the animals the appearance presented by the bones was natural, and they seemed to possess their ordinary physiological peculiarities.

PHOTOGRAPHIC AIDS IN CLINICAL RECORDS.

The advantage offered by photography in illustrating the clinical history of disease has been utilised by the Americans in the establishment of a *Photographic Review of Medicine and Surgery*, which is announced to appear every second month, and with the object of accurately recording the more striking features in the external aspect of important cases of disease occurring in the hospital and private practice of the profession in the United States. Each number of the new journal—which is edited conjointly by Drs. Maury and L. A. Duhring, and published by the well-known firm of Lippincott and Co., of Philadelphia—will contain four photographic plates, with appropriate notes and remarks. The first number, which has reached us, contains excellent illustrations of multilocular hydatid tumour of the thigh, with comments by Dr. Gross; a large meningocele in a child eight months old; several remarkable horny growths from a man aged seventy-eight, and keloid outgrowths from the neck and back of a negro, a native of Carolina; and these illustrations are of the greatest assistance in helping to a correct understanding of the text. If the editors can secure the contribution of similar communications in succeeding numbers—and we notice that many well-known American physicians and surgeons, such as Drs. Costa, Pancoast, Brinton, Packard, Weir, Mitchell, Ashhurst, Harris, Allen, and Morton, have promised to become regular contributors—they will have made a valuable addition to the existing machinery for accurately recording medical and surgical facts, and earn for their journal a wide popularity and a large sphere of usefulness.

PATENT PILLS, POWDERS, AND PLASTERS.

It may or may not be satisfactory to know that, according to a Parliamentary return recently published, the revenue derived last year from the sale of stamps for patent medicines amounted to £72,353. But, indeed, Parr, Holloway, and others of their tribe have flourished, and will continue to flourish so long as medical men fail to see the importance of paying attention to the little aches, pains, and discomforts to which flesh is heir. We referred to this subject some time ago, and again counsel both physician and general practitioner not to consider any symptom or physical grievance, however apparently fanciful, too trivial for kindly as well as careful consideration. The number of individuals in all classes of life who consider a daily dose of aperient medicine necessary to their existence is far greater than is generally imagined, and the practice is fed and fostered by the patent medicine system to an enormous extent. If, however, a little more time and trouble were spent in teaching patients what to eat, drink, and avoid, how to clothe, and when to wash, the successors of Widow Welch and Mr. Cockle would flourish less, and professional readers would be benefited both in pocket and prestige.

ANTISEPTIC DRESSING.

Some short time ago we drew attention to the advantages of a material contrived by Mr. Westhorp, and called by him "marine lint." It consists of a combination of animal and vegetable fibres, very finely carded, and intimately mixed by machinery, and saturated with tar. This has been largely used in the hospitals at the seat of war, and letters which we have seen from Captain Brackenbury, and others, speak most favorably of the estimation in which it is held by the surgeons, on account of its deodorising properties. The material has been improved by the addition of a paper backing, which makes it more convenient to use, and renders the dressing nearly waterproof. The "antiseptic dressing," as this preparation is now called, is prepared in sheets, from which a portion of suitable size has only to be cut, and applied, without further preparation, to the wound. It gives out a somewhat strong, but not disagreeable, tarry odor. The chief advantages of this dressing are its cleanliness, its ready application, its deodorising qualities, and its economy. The price of the material is 1*s.* 9*d.* a pound. We think there are sufficient grounds for a very careful trial of the preparation in the wards of our hospitals generally. It has been employed for some time past in St. George's Hospital.

ADULTERATED DRINK.

The Chief Constable of Leeds, in reporting a large increase in the number of persons convicted of drunkenness, notwithstanding an improved state of the beer-houses, attributes the increase to the deleterious quality of the liquor drunk, which creates in some a stupor so complete as to render them incapable of the least action. He states that he has "seen men fall as suddenly as though poisoned." The worst feature in such cases is, that the poor at length acquire a liking for such depressing poisons, and use them because their stupefying effect is more intense and more continuous. It is said that, in Liverpool, public-houses selling wholesome liquor cannot compete, in the lowest districts, with those which do not. Surely it is a matter of public interest that publicans should be prevented from thus poisoning the people wholesale, and from converting them from industrious citizens into dependent paupers.

VACCINATION IN THE NEGRO.

Dr. Mortimer, R.N., has called attention to a circumstance in connection with vaccination in Africans which we are not aware has been remarked before—namely, that the vesicles take a longer time to develop in the African than in the white man. On the 10th December, 1868, he vaccinated two African boys (servants on board), eight officers, and two men. On the eighth day the vesicle was fully developed in the officers and men, but could hardly be seen in the Africans; in fact, it was thought to have failed; but on the tenth day it began to appear, and on the twelfth was fully developed. Dr. Mortimer afterwards vaccinated some Englishmen from these boys with good effect.

On the 12th December Dr. Mortimer vaccinated from tubes, on Quarantine Island, two Americans and a Frenchman who had charge of the Africans, and fifty-five Africans, chiefly young children. On the eighth day the vesicle was fully developed in the Americans and Frenchman, but was not developed in the Africans until from the eleventh to the thirteenth day. On the 14th December he vaccinated seventy Africans, and the vesicle ran the same lengthened stage.

THE ACTION OF QUININE ON THE TEMPERATURE OF THE BODY IN DISEASE.

The *Indian Medical Gazette* for Dec. 1st ult. contains a short paper by Assistant-surgeon Dr. Hamilton, of the Royal Artillery, on this subject. It appears as the result of his experiments on an officer, aged forty, of spare habit of body and nervous temperament, who was the subject of ague, that quinine administered in ten- and five-grain doses had the effect of averting the paroxysms, and of reducing the temperature about 3° as determined by one of Cassella's most delicate registering instruments. It had been previously suggested by Assistant-surgeon Hall, also of the Royal Artillery, that quinine should be administered internally and hypodermically in cases of insolation; and, if we remember aright, some cases illustrative of the apparent benefit of quinine were published by him. If it be proved that this alkaloid has this property of reducing the temperature, its effect in such cases where the blood becomes super-heated may, as Dr. Hamilton points out, be explained.

TREATMENT OF WOUNDS BY PNEUMATIC OCCLUSION.

One of the last numbers of the *Gazette Médicale de Paris* contains a suggestion by M. Guérin for treating wounds by the exclusion of the atmosphere. This is accomplished by placing over the wound a small sac or cylinder of caoutchouc, to the extremity of which a pipe is inserted that is attached to a balloon or chest destitute of air, and which consequently exerts a constant suction power over the seat of injury. By this means, according to M. Guérin, the approximation of the edges of the wound, and their consequent healing by first intention, is facilitated, while it prevents the absorption of pus. By this means, in fact, the wound is placed in the condition of a subcutaneous injury, or, even if this be not completely effected, the period of inflammatory swelling of such wounds when exposed to the air is shortened; whilst, if there be much loss of substance, it promotes the exudation of plastic lymph, and the formation of a cicatrix. He relates various cases of injury he has treated successfully by this means.

RESPIRATION IN FEVER.

Dr. Leyden (*Deutsches Archiv*, 1870) observes that the respirations are usually accelerated in febrile conditions, though not demonstrably in relation to the degree of augmentation of the animal heat. This may, perhaps, be due to increased excitability of the nerves and heart, and to increased metamorphosis of tissue. The central point to determine, however, in regard to this subject, is whether there is an augmented excretion of carbonic acid, and to ascertain this Dr. Leyden adapted an apparatus which could be readily applied to patients laboring under various kinds of affections accompanied by febrile states of the body, as recurrent fever, typhus fever, pneumonia, &c. In four series of observations, with twenty-nine experiments, there was constantly an increase in the depth of the respirations in the proportion to the normal of rather more than 1½ : 1, whilst there was a diminution in the percentage amount of carbonic acid eliminated of 3 : 3⅓; so that, on the whole, there was an augmentation in the amount of carbonic acid discharged in fever in the proportion of 1⅓ : 1.

THE POOL OF SILOAM.

The miraculous efficacy of the Pool of Siloam, as recorded in the Scriptures, is familiar to us all, but its modern condition appears as fraught with danger as was its ancient with the power of healing. Speaking of a fatal case of enteric fever, the surgeon of H.M.S. *Endymion*, Dr. Alex. Fisher, says:—

"I attribute the origin of this case to the use of the water at Jerusalem, and consider ourselves fortunate in having escaped with only one case of enteric fever among the seventy-two persons visiting it. Without the walls of Jerusalem the water appears to be very good, but inside it is received into vast tanks and reservoirs beneath the Haram area, and elsewhere. These, from what I saw in the excavations recently executed by the Palestine Exploration Society, are entirely without protection from receiving a large proportion of the sewage of the city, in some cases without even the slightest filtration through earth, or other obstacle. At the Fountain of Siloam, and Pool of Siloam, the water distinctly tasted like soap-suds, brought down by the water from the baths, &c., close to the Temple enclosure."

TRANSATLANTIC COURTESIES.

We have been favored with the receipt of a pamphlet containing some 190 pages of small type, wherein is set forth particulars of a suit instituted against Dr. Lewis A. Sayre, of New York, for alleged malpractice. Two other well-known surgeons are said to have stated that an opening made in the gluteal region of a child (the subject of the action) communicated with the joint, and that synovia had escaped. But the sum and substance of all worked itself into the fact that Dr. Sayre had diagnosed a chronic abscess, had immediately opened that abscess, and had incurred the grave displeasure of the mother in so doing. Thereupon the action was brought, a verdict in favor of Dr. Sayre was recorded, and the plaintiff was ordered to pay an extra allowance of 1000 dollars in addition to the ordinary costs of the suit. We call attention to this trial for the purpose of congratulating Dr. Sayre. The courtesies of the profession appear to need cultivation in New York, as well as on this side of the Atlantic.

PATHOLOGY OF LEUCÆMIA LIENALIS.

Dr. Hofmann, in a paper on this subject in the *Wiener Megizinische Wochenschrift*, from a careful examination of the urine, and especially of its coloring matter, appears to have demonstrated that in this affection there is not only a diminished formation, but an increased disintegration, of red corpuscles—at least if the coloring matter of the urine is to be considered as a derivative of that of the corpuscles; if not, it must proceed from some other substance having strong coloring capacity.

Correspondence.

"Audi alteram partem."

SKIN-GRAFTING.

To the Editor of The Lancet.

Sir,—Much has been written of late on skin-grafting. From my own experience of it in the hospital here, I can corroborate every statement that has been made on the subject. I think the practice of it is of immense consequence in the treatment of ulcers, particularly in the treatment of extensive granulating sores following burns, &c. It is quite unnecessary, however, to put the patient to the pain of cutting a piece of healthy skin from the body for the purpose of transplanting it on the sore. All that is necessary to be done is, to take a long bistoury, or razor, and shave or scrape off the epidermic scales from the convex parts of the extremities, such as on the outer and convex aspects of the forearms and thighs, and place them on the healthy granulations. This can best be done by brushing the scales off the bistoury with a camel-hair pencil. After securing them *in situ* for three or four days by means of common adhesive plaster, the granulations on which the epidermic scales were placed assume a glazed bluish appearance, which gradually grows into skin, and meets the nearest edge of the healing ulcer, which edge shoots out, and meets the newly-formed skin on the granulations. The result is a continuity of healthy skin. Such has been the result of the practice here, and it is not necessary for me to enlarge on the advantages of it.

It has been mentioned by some of the writers on skin-grafting that the formation of the new skin is accounted for on the cell theory. I have no doubt that it is so, for, according to the observations of Schwann on the theory of the growth of the epiderma, these scales are nothing more than dried cells having a nucleus in them, though it is stated that they are scarcely apparent. Mr. Erasmus Wilson, too, states, in his work on Diseases of the Skin, that the formation of the epidermal scales results from the desiccation of the cells. Now, if the scales are scraped off the skin and placed on healthy granulations, and kept on them for a time—say four days,—is it not possible that the scales may imbibe serum from the plastic lymph on the granulations and adjacent tissues, and form cells, which ultimately go to the formation of skin? At all events, the practice of placing epidermal scales on a healthy granulating sore causes it to heal or skin over more rapidly, not only from the edge, but also in the centre of it.

I may mention that my colleague, Professor Pirrie, in his work "On the Principles and Practice of Surgery," makes mention of a case he had in which a large isolated portion of skin formed in the middle of an ulcer, and gradually increased in size till it joined that formed from the circumference of it. It is quite possible that the isolated piece of skin might have grown from an epidermal scale which had accidentally fallen on the ulcer.

I am, Sir, your obedient servant,
David Fiddes,

Aberdeen, Dec. 5th, 1870. Surgeon to the Royal Infirmary, &c.

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CARBOLIC ACID IN OTORRHŒA.

To the Editor of The Lancet.

Sir,—The following cases, as examples of the almost uniform good result attending the use of carbolic acid as an injection in chronic otorrhœa, may not be uninteresting to the profession. I have taken them at hazard from some hundreds which I have treated in a similar manner at the Royal Dispensary for Diseases of the Ear. In the few instances in which its application failed to entirely cure, it not only lessened the secretion considerably, but deprived it of the disgusting fetor by which it is usually characterised—a boon of no small moment both to the sufferer and the surrounding friends. The proportions in which I have prescribed it, are: carbolic acid, one drachm; glycerine, one ounce; distilled water, five ounces. I have never found it create the slightest irritation, and the only complaint I have heard was when a too vigorous application of the syringe forced the fluid through a perforated membrane into the mouth.

Case 1.—Wm. W—— fell from a ladder four years ago. Had suffered from profuse, highly offensive discharge from his right ear ever since. On Nov. 18th was ordered to syringe with carbolic-acid lotion three times daily. Discharged, completely cured, on Nov. 26th.

Case 2.—Mary Ann W—— has suffered from highly offensive discharge from right ear for three years, after scarlatina. On Nov. 12th was ordered to syringe with carbolic-acid lotion. Discharged, well, on Nov. 26th.

Case 8.—John W. W——. Discharge from right ear for twelve years; attributes it to a severe cold. On June 17th was ordered to syringe with carbolic-acid lotion three times daily. Discharged, well, on July 1st.

Case 4.—Henry B——, aged three years. Discharge from both ears for twelve months, after whooping-cough. On Oct. 28th was ordered to syringe thrice daily with carbolic-acid lotion. Discharged, well, on Nov. 18th.

Case 5.—Jane W——. Discharge from left ear for ten years, after scarlatina, highly offensive. On July 6th was ordered to syringe with carbolic-acid lotion three times daily. Discharged, well, on Nov. 25th.

Case 6.—Mary S——. Discharge from left ear for fifteen years, after scarlatina. Complains much of its offensive character. On June 8th was ordered to syringe with carbolic-acid lotion four times daily. Discharged, well, on Nov. 18th.

Your obedient servant,
John P. Pennefather.

Gloucester-place, Hyde-park, Nov. 28th, 1870.

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TRAUMATIC ERYSIPELAS.

To the Editor of The Lancet.

Sir,—Will you allow me to make known, through your valuable journal, a means of preventing this formidable and often fatal disease?

It is hardly necessary to say how frequently erysipelas occurs after lacerations and other wounds, unless proper means be adopted for its prevention, otherwise we should not constantly hear in medical evidence given before our police magistrates that the patient cannot be considered out of danger, as there is a risk of erysipelas; on account of which evidence bail is refused, and the defendant consigned to the "lock up." Further, should the patient unfortunately succumb to erysipelas, not only is a life lost, but the defendant's punishment is proportionately severe. I may, perhaps, be allowed to say that between 500 and 600 cases of lacerations, crushes, and wounds to the scalp and other parts (of course both in the healthy and unhealthy) have been treated by this method, and without a single instance of the full development of erysipelas or a death. The treatment consists in freely and perfectly washing the injured parts and those adjoining with a solution of nitrate of silver (thirty grains to the ounce of distilled water), and by dressing the parts until healed with a weaker solution—ten grains of the nitrate to the ounce. If the scalp be separated to any extent, I wash the whole interior with the solution, and have but little, if any, pus secreted. The edges of the wounds are brought into apposition by tying the hairs from either side together; or, if there be no hair, by means of adhesive plaster over a piece of calico dipped in the nitrate of silver solution. In many instances wounds have been plastered up, and become puffy and erysipelatous, before seen by us. We have then opened them out, and treated them as fresh cases with the solution, to find in every instance the disease disappear.

Your obedient servant,
S. Lawrence Gill.

Bow-road, Jan. 9th, 1871.

ON THE EFFICACY OF BELLADONNA IN CERTAIN AFFECTIONS OF THE GENERATIVE ORGANS.

To the Editor of THE LANCET.

SIR,—Judging by the excellent effect which belladonna affords in cases of incontinence of urine, I was induced to try it some months ago in nocturnal emissions, and also in those so-called cases of spermatorrhœa consequent upon the loss of tone and irritable state of the generative organs, with very beneficial results, even in extreme cases. I generally prescribe it alone in gradually increasing doses until the desired effect is produced; but occasionally give it in combination with quinine or the tincture of muriate of iron, but not with better results, as I have reason to believe that in some instances the iron has a tendency to neutralise the efficacy of the belladonna. Without entering into the details of the various cases, I may mention that the belladonna seems to possess a decided superiority over the iron in soothing the irritable state of the generative organs which is generally found in these cases, and also in not producing congestion and constipation. It also seems to possess some slight aphrodisiac properties.

Your obedient servant,
R. M. JONES, M.R.C.S.E.

Brixton Dispensary, Nov. 17th, 1870.

CHILBLAINS.

To the Editor of THE LANCET.

SIR,—At this season of the year, and especially on the breaking up of the frost, the prevalence of chilblains is very great among nearly all classes of persons. For this prevalent and often painful malady a perfectly safe and effectual remedy is obtainable in the employment of laudanum, taken internally in very small doses of from two drops for young children night and morning, up to six or eight for adults. It is in such quantities perfectly harmless, and, as a rule, will effect a cure in the course of four or five days.

Your obedient servant,
F. C. SKEY, C.B.

Mount-street, Grosvenor-Square, Jan. 1871.

To the Editor of THE LANCET.

SIR,—The severe weather has caused an unusual amount of suffering to young people from chilblains. I have found an excellent remedy in the new disinfectant, "chlor-alum," for unbroken chilblains. It should be applied undiluted night and morning, using a moderate amount of friction.

Yours obediently,
GEORGE P. RUGG, M.D.

Clapham-road, Jan. 4th, 1871.

THE SPHYGMOGRAPH ANTICIPATED BY GALILEO.

To the Editor of THE LANCET.

SIR,—In the interesting "Life of Galileo," lately published by Macmillan and Co., occurs the following paragraph respecting the sphygmograph:—

"The connexion of the great bronze lamp in the nave of the cathedral at Pisa with Galileo's earliest mechanical discovery is well known. Viviani says that, having observed the unerring regularity of the oscillations of this lamp and of other swinging bodies, the idea occurred to him that an instrument might be constructed on this principle which should mark with accuracy the *rate* and *variation* of the pulse. Such an instrument he constructed, after a long series of careful experiments. This invention, though imperfect, was hailed with wonder and delight by the physicians of the day, and was soon taken into general use, under the name of the Pulsilogia."

I am, Sir, your obedient servant,
CHARLES WILLIAMS, F.R.C.S.

Norwich, November 21st, 1870.

HOW TO APPLY LEECHES WITH LEAST TROUBLE AND ANNOYANCE, AND GREATEST EFFICIENCY.

To the Editor of THE LANCET.

SIR,—Having had occasion to order a mustard-poultice for a patient, it became requisite to put some leeches on the same place. I was told that they fastened instantly, filled rapidly, and that the blood streamed afterwards into bread-poultices as if it would never stop. I took the hint; and now, whenever I order leeches, I always have a mustard-poultice applied first, then the leeches (two or three instead of half a dozen), and then bread-poultices. There is less trouble for those who have to apply the leeches, far less annoyance, weariness, and exhaustion for the patient, and a much more satisfactory result. The flow of blood is, however, sometimes so much greater than would be thought likely or possible, that I think it right to add a few works of caution. A few days ago one of my patients, a young lady, grown up, and of average strength, bled to fainting from only two leeches applied in this way.

Your obedient servant,
L. R.

November 8th, 1870.

EXTIRPATION OF THE COCCYX.

To the Editor of THE LANCET.

SIR,—My apology for disputing Dr. Nott's claim to priority in the performance of this operation must be that the *New Orleans Medical Journal* is not easy of access, and that until to-day I was not aware of its existence. Under the circumstances narrated in his letter I am quite prepared to admit Dr. Nott's claim.

Coccydynia, like all other neuralgic affections, is not always cured by operation, as I have elsewhere shown; and I can quite understand that in the hands of Sir James Simpson, as in the experience of others, both the subcutaneous operation and that of excision may have proved of only temporary benefit.

I am, Sir, your obedient servant,
LAWSON TAIT.

Waterloo-street, Birmingham, Nov. 5th, 1870.

OIL OF PEPPERMINT AS A LOCAL ANÆSTHETIC.

To the Editor of THE LANCET.

SIR —A few years ago, when in China, I became acquainted with the fact of the natives, when suffering with facial neuralgia, using oil of peppermint, which they lightly apply to the seat of pain with a camel-hair pencil. Since then, in my own practice, I in the same way frequently employ oil of peppermint as a local anæsthetic, not only in neuralgia, but also in gout, with remarkably good results; indeed, the relief from pain I have found to be almost instantaneous.

I am, Sir, your obedient servant,
ALFRED WRIGHT, L.R.C.P. Edin.

Finchley, N., November 14th, 1870.

Foreign Gleanings.

THE ETIOLOGY AND TREATMENT OF DIPHTHERIA.

PROF. STEINER, of Prague, has published, in the *Jahr. f. Kinderk.* of November 1st, 1870, a series of cases in which he was able to try different kinds of treatment, and watch the result. He thinks that the etiological question is not as yet solved, although very great authorities consider diphtheria to depend on blood-poisoning. Nor can the purely local cause, in the shape of germs, be satisfactorily proved. Further investigations are indispensable to decide between the two theories. Therapeutically, the professor considers that the means which answered best in his hands are lime-water locally, and, internally, quinine, chlorate of potash, and wine; when laryngitis occurs, emetics; and if they act no more, tracheotomy. When paralysis follows the acute attack, tonics are to be recommended, but the author has found that in many cases the symptoms of paralysis disappeared without treatment.

Dr. Moritz Schlier has tried carbolic acid extensively in diphtheria, his reason for using it being the supposed existence of germs in this disease. The solution used was 1 in 16, and it was energetically applied to the false membranes by means of the finger wrapped in some linen. No internal remedy was employed; but those patients whose age allowed them to gargle were made to wash out the mouth with the above-named solution every half hour. Out of 36 cases, 13 recovered, and these were all very severe; most of the patients, also, were out of danger in about four or five days. During convalescence, tonics and wine were liberally used.

ILEUS CURED BY ELECTRICITY.

Dr. Macario, of Nice, has published this case in the *Annali Univ.*, Oct. 1870.—The patient was a gentleman of seventy-one, who, being habitually costive, used purgatives and clysters to excess. On the 22nd of February last he had taken, in the morning, no less than six enemata of warm water to open the bowels, and eaten his meal as usual. Half an hour afterwards he was seized with severe pains in the umbilical region with some vomiting, and an alvine dejection took place at 4 P.M. The latter seemed to be simply the expulsion of the clysters. From that time no fæces or flatus passed, and the patient, presenting a haggard countenance, and suffering severely from cramps in the legs, had all the appearance of a man stricken with cholera. A consultation was arranged for the next day, and Dr. Macario proposed, as no hernia could be discovered, to use electricity. A powerful battery was procured, and one of the conductors was placed in the rectum, while the other, covered with a wet sponge, was moved about on the abdominal parietes. The latter contracted energetically, the surface of the abdomen looking, says Dr. Macario, like a sea agitated by billows. The patient experienced much pain, and begged that the current might be broken. It was continued for ten minutes; the vomiting ceased, a visible improvement took place, and four hours afterwards the bowels were moved, several evacuations taking place the same night. Whether the case was ileus or not, it is clear the galvanic current proved very effectual.

KOUSSIN IN TÆNIA SOLIUM.

Professor Ditterich, of Munich, states, in the *Allg. Med. Cent. Zeit.*, Dec. 28th, 1870, that he has been very successful with koussin, the alkaloid of kousso, discovered by Pavet. It is a pity that this alkaloid is so very expensive, as no more than 3 per cent. can be obtained. The author has found it act in forty-grain doses, divided into two powders, to be taken in a wafer; and he thinks that none of the precautions customary with kousso are necessary. Koussin seems to have an aperient effect, and carries off the worm with the stools in three or four hours. Hence no castor oil is required. Professor Ditterich does not say a word about the head, but principally dwells upon the small dose necessary, and the absence of vomiting and nausea. The price of the dose is 6*s.*, which certainly is not extravagant, when it is considered that, originally, the dose of kousso was advertised in Paris at 16*s.*

CHOREA.

Dr. Steiner, of Prague, relates, in the *Jahrb. f. Kinder.*, 3 Heft, 1870, an epidemic of chorea in girls. Out of nineteen cases, eighteen belonged to the female sex. Imitation had not, in these instances, any influence; but there must have been, in all probability, one general cause for the epidemic. Dr. Steiner thinks that the pathology of the complaint is to be sought principally in spinal irritation. The bromide of potassium, which has been much lauded for chorea by various authors, failed entirely in this epidemic; whilst excellent results were obtained by Fowler's solution. The author increased the doses gradually, and reached in some cases from seven to eight drops in the twenty-four hours. Dr. Steiner found the combination of opium with the solution very advantageous, and uses the following mixture:—Distilled water, four ounces; Fowler's solution, eight drops; tincture of opium, six drops: four tablespoonfuls in the twenty-four hours.

DYSENTERY IN CHILDREN.

Dr. Dyes (*Journ. f. Kinderkr.*, Parts 5 and 6, 1870), has observed that some autumns pass without an epidemic of dysentery, though diarrhœa is prevalent. He considers that the former complaint is the result, not simply of the use of unripe fruit, which merely gives rise to diarrhœa, but to a peculiar pellicle which, in certain years, covers the fruit. This pellicle is, according to Dr. Dyes, composed of animalcules, the latter being the principal cause of dysentery. To prevent the effect of this fruit, chlorine water should be administered to destroy the parasites. This remedy, and promoting the action of the skin, may altogether prevent attacks of dysentery when such noxious fruit has been ingested.

HYPODERMIC INJECTIONS OF MORPHIA.

Dr. Hamon, of La Rochelle, has tried to prevent the use of cloudy morphia solutions for his injections. Finding that, after a while, such solutions present threads and floating particles, he has had one grain of hydrochlorate of morphia put in a little compartment of the box containing the syringe. When wanted, he places twenty-five drops of water into a small glass, drops the powder into it, and puts the glass in warm water. The salt immediately dissolves, and five drops of the solution contain accurately a fifth of a grain of morphia. What become of the twenty drops left? Are not five drops too small a quantum of liquid for injection purposes?

GOITRE AND THE USE OF STEEL.

Dr. Seitz maintains, in the *Alleg. Med. Cent. Zeit.*, Dec. 28th, 1870, that steel medicines not only cause an increase of the Derbyshire neck, but produce an enlargement of the thyroid gland where there is the least actual or hereditary tendency to the complaint. The author quotes several striking cases, and suspects that such countries where the water contains a proportion of iron are most likely to be inhabited with people suffering from goitre. Iodine succeeded admirably in his hands, where, with steel, he had provoked the rapid enlargement of the gland. Dr. Seitz calls upon his brethren to undertake experiments, and to follow up the cases with actual measurement.

PLEURITIC EFFUSION AFTER TYPHOID FEVER; PARACENTESIS THORACIS.

Dr. Bergeret publishes, in the *Lyon Médical* (Nov. 6th, 1870), the case of a man, aged twenty-six, who, just recovering from typhoid fever, was seized with pleuritis and effusion. As ordinary means remained unsuccessful, paracentesis was performed with a trocar running through the top of a bladder. At one time bubbles of air were seen to enter the chest, but they left it again on each expiration. The case did well, though three quarts of serum were removed, and Dr. Bergeret expresses the opinion that the entrance into the chest of a little air is not so prejudicial as has been stated.

CARBOLIC ACID IN PRURITUS.

Dr. Binz, of Bonn, has tried this acid in the very obstinate complaint known as pruritus cutaneus. The patient was a man, aged seventy-four, who took gradually from the fifth of a grain to nineteen grains a day. The improvement increased in the same proportion as the doses. Dr. Binz ordered the medicine to be omitted several times, to try whether the favorable changes were the result of chance; but whenever the acid was given up the complaint returned. Dr. Kemmerich tried the acid upon a young soldier affected with pruritus, without success, and gave arsenic with excellent effect.

THE DRESSING OF WOUNDS.

Dr. Florschütz states, in the *Med. C. Zeit.*, Jan. 4th, that he had lately under his care numerous wounded German soldiers who reached the hospital after six days' journey. At first he used the common dressings, but soon gave the preference to tinfoil. The latter is placed in an imbricated manner on the wound, and over the foil some charpie where the suppuration is abundant, and a simple compress where it is not. The dressings were changed twice in the twenty-four hours at first, but only once when the patients improved. The author prefers the tinfoil to lead-leaf, which has been recommended, and has found that the most severe gunshot wounds did well with the tinfoil, which latter is very cheap and easily procurable.

PALATABLE COD-LIVER OIL.

Dr. Pavesi states (in the *Ung. Med.-Chir. Presse*, No. 44) that cod-liver oil, macerated with burned coffee and charred ivory, loses its disagreeable taste, and gives the perfume of coffee. Hutet also mentions that one grain of iodine, added to a teaspoonful of a strong infusion of coffee, has no longer any taste or smell, and does not give the blue tinge to starch.

News Items, Medical Facts, &c.

Dr. Nathan Smith's Splint.—A military correspondent, writing to *The Times* from Orleans on the 17th December, alluded to the above splint as one which he had personally seen used in many cases, and of which the American surgeons seemed to be very proud. It was introduced to the profession many years ago, and is, doubtless, well known to our readers. The splint is unquestionably ingenious in principle, and combines many advantages. It is mainly, but not exclusively, employed for fractures of the femur; for we heard of a case of compound fracture of the bones of the leg in which its application proved very advantageous and comfortable. A description of the splint is not easily given without the aid of an engraving; but reference to some recent surgical manuals, such as "Druitt's Vade-Mecum," will afford the requisite information to those interested in surgical appliances.

The Siamese Twins.—Chang, who was paralysed on the right side whilst returning to America last August, we hear has so far recovered that he is able to move about with the aid of a crutch, the leg being the only part now affected. We are informed that Eng, during his brother's illness, did not suffer in any way, but, on the contrary, never enjoyed better health, although necessarily confined to bed for a considerable period.

Professor Emile du Bois Reymond presided at the Berlin Royal Academy of Science the other day. After drawing a historical parallel between the reign of Frederick and that of the contemporary French Bourbons, he dwelt on the cosmopolitan character of science, by which the Berlin Academy remains, notwithstanding the war, in close sympathy with the scientific associations in France.

A **semi-official** account of the condition of the Prussian armies in France estimates the German effective strength (in France) at 600,000 men, of whom 250,000 are now before Paris. This report states that the German troops have at present 100,000 sick, and have lost since the beginning of the campaign, either in battles or in hospitals, 300,000 men.

Dr. Livingstone.—Natal papers say that Mr. Arthur Walker, jun., who arrived in that colony early in October, states that as he left Leydenburg, in the *Transvaal*, he learnt from Mr. George P. Moodie, who had just returned from Delagoa Bay, that Dr. Livingstone was reported to be at Mozambique, waiting for a homeward-bound vessel.

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PRACTICAL PHYSIOLOGY.

Lectures
ON
EXPERIMENTAL PHYSIOLOGY.

By **Wm. Rutherford**, M.D., F.R.S.E.,

Professor of Physiology in King's College.

LECTURE II.—Irritability.

Gentlemen,—In my last lecture I explained to you some fundamental and all-important points regarding matter and energy—the two great factors with which chemists, physicists, and physiologists have to deal. We saw that we cannot create or destroy either matter or energy. Our gaseous and solid food consists of matter loaded with energy. The matter and the energy undergo various metamorphoses, and finally leave the body in states very different from those in which they entered it. The oxygen inspired chiefly combines with carbon and hydrogen to form carbonic acid and water; while the complex compounds introduced by the mouth are finally tumbled to pieces of simpler chemical structure, and leave the body as such. The energy enters the body as chemical energy stored up in the food; it passes through various transformations, and leaves the organism chiefly in the form of heat. When it enters the body it is silent and at rest; in other words, it is *potential*. Soon, however, it wakes up, shakes off its lethargy, and in its *actual* form may accomplish feats of, perhaps, nerve and muscular power which can startle the world.

We are now in a position to study *Irritability*. To do this we shall take the leg of a frog, with its sciatic nerve dissected out and detached from its connexion with the spinal cord, but still attached to the gastrocnemius and other muscles of the leg proper. With a pair of scissors I divide the spine in the dorsal region, then the muscles and skin of the abdomen, and remove the viscera. I now take hold of the lumbar vertebræ with one hand and the skin with the other, and forcibly separate the two, in order to denude the muscles. Lastly, I isolate the sciatic nerve everywhere, save at its terminations in the leg, and then remove the leg with the nerve by dividing the nerve close to the spine and the muscles and femur about the middle of the thigh. I fix the femur in a pair of forceps supported on a stand, placing the limb horizontal, with the gastrocnemius uppermost, so that you may all see the movements of the leg. I now pinch the free end of the nerve. The leg is moved. I pass electricity through the nerve. Again the leg moves. I now cut off the bit of nerve that I pinched, and dip the newly exposed section of the nerve into a solution of common salt. The leg moves again, but not so quickly as before. I now cut away the bit of nerve in contact with the salt, and hold this heated wire near the nerve-trunk. Once more the muscles of the leg are thrown into motion. Now, I have not been acting on the muscles directly, but have only been influencing them through the nerve. I have in these illustrations done something to this nerve that caused it to influence the muscles. But you will ask why you should believe that the muscles have just now been influenced only through the nerve. I will furnish the proof. I tie a thread firmly around the middle of the nerve. I now pinch the nerve on the side of the thread *furthest* away from the muscles; but my pinch is now powerless to affect the muscles; yet when I squeeze the nerve on the side of the ligature *nearest* the muscles the leg moves as it did before. You must, therefore, admit that in these experiments we have been acting on the muscles through the nerves, and that this power of the nerve to convey an influence to the muscles can be destroyed by a ligature tied round the nerve.

Here is another frog's leg, with the sciatic nerve prepared in the same manner. I pinch this nerve, but the leg remains motionless. I send electricity through the nerve; the result is equally negative. But you see that no thread has been tied round this nerve; it looks in every way just like the other when we began our experiment, and yet it refuses to do what the other did. You saw me remove the first from a living frog; this one was removed from a frog yesterday. Doubtless you will now say—"Oh, the one nerve is living, while the other is dead, and that explains the whole matter." True, But now I want to show you that, if I apply to muscular tissue itself the various agents which I have applied to nerve, the muscles will move just as if the nerve had been acted upon. How shall we act on the muscular tissue directly without acting on the nerves? We must have no action on the nerves, else the experiment will not show what we desire. We will paralyse the nerves, and so render them incapable of affecting the muscles. I have here a solution of the Indian arrow poison named Curara. With the aid of Wood's syringe I inject a little under the skin of a living frog. It will speedily finds its way into the blood, and will paralyse the peripheral terminations of the voluntary motor nerves. .... You now see that the animal is motionless; it lies as if lifeless, I cut down on the sciatic nerve, isolate it, divide it high in the thigh, and now I pinch the end in connexion with the leg; no movement results. I electrify it; the leg lies motionless. The nerve seems to be dead. But I electrify the gastrocnemius, and you see that it instantly contracts. I pinch it, and it moves. I touch it with a heated wire; again it is convulsed. The poison has obviously paralysed the nerves, but not the muscles. You may, however, say—How do you know that your poison has palsied the very ends of the nerve-fibres? May there not be some portions of the nerves in connexion with the muscular fibres which have escaped the deadening influence of the poison? For reasons which I shall afterwards mention, this is unlikely; but I at once admit that I cannot consider your objection as devoid of importance. We turn to another mode of getting at what we want. I take a fresh unpoisoned sciatic nerve connected with the gastrocnemius. I cut off the tendo Achillis, and bring dilute ammonia in contact with the cut surface; the muscles at once contracts. I now cut a slice from the muscles so as to remove the part which has been touched with ammonia, and dip the cut surface of the sciatic nerve into the ammonia; the muscles remains at rest. But when I cut away the piece of nerve contaminated with the ammonia, and apply salt solution to a new piece of nerve, the muscle, as you see, contracts. Here, then, we have in ammonia a substance which throws muscle into contraction when applied to it directly, but not when applied to the nerve. This is a demonstration that we may act on the muscular *substance* directly, and thereby cause the muscle to move. This is quite what one would have expected, seeing that there are contractile tissues, such as the white blood-corpuscles, which may be thrown into motion without the intervention of nerves at any time.

I electrify another muscle, however. This one belongs to the leg removed from the body yesterday. It remains motionless, in spite of my electricity. Why? Because it is dead.

These facts show that, under certain conditions, nerve and muscle can by various means be made to evolve energy. The visible motion of the muscle is sufficient evidence of the evolution of energy within that structure. I shall, however, show you this in a more startling way. I attach a weight of 100 grammes to the tendo Achillis of this frog's gastrocnemius, and now I electrify the muscle. You observe that this weight—so heavy when you compare it with the size of the muscle—is lifted. Energy is the *power to do work:* here we have work in earnest. You cannot fail to be convinced that we have caused the muscle to evolve energy, but I fancy you may have doubts about the nerve. The muscle is extremely candid: it does something which impresses our sense of sight strongly enough. But the nerve is more subtle: we may apply all our senses to it—it refuses to affect them. Nevertheless we must admit that it evolves energy when, on pinching it, we find that it throws a muscle into motion. You notice that the muscle lies at rest until I excite the nerve, or the muscle itself. It is like a lucifer-match on a mass of gunpowder. It does not energise *spontaneously*, but its energy is dormant (potential) until some actual energy is brought to bear upon it, and then its dormant energy bursts forth. It would lie dormant for ever were its *evolution* (or transformation into actual energy) not set agoing by some actual energy. Therefore, when I pinched the nerve, I must have caused the nerve to energise; for only in this way can it in turn cause the muscle to energise.

The store of energy in the nerve and muscle is by no means inexhaustible. Every time I excite the nerve or muscle I cause them to draw upon their stores of energy; and every time this is done there remains a smaller amount of energy at their command. The tissues have been removed from the source of their energy—the blood; and therefore they are compelled to spend their capital, as it were, when excited in this way. No doubt they can draw upon the oxygen of the air directly, and, although the nerve takes little of this, the muscle draws on it to a large extent. Even the muscle, however, must give in; for the energy of the oxygen is of no avail unless there be something with which the oxygen is to chemically combine. The supply of this in the muscle is of course limited. I shall show you that this nerve's energy can be exhausted. I arrange it so that it will be electrified for a considerable period of time. You see that the nerve is now throwing the muscle into violent contractions. Ere the demonstration close you will see the muscle at rest, although the nerve will be as powerfully electrified then as now.

Hitherto I have as much as possible abstained from technicalities. It is now, however, time that I should inform you that the various mechanical, electrical, thermal, and chemical manifestations of energy with which I have caused the nerve and muscles to act are termed excitants, irritants, or stimuli; and when these or any other forms of energy, such as sound, light, or mental energy, cause muscle or nerve to act, these tissues are said to be *irritable*, or to possess the property of irritability. Formerly it was fashionable to employ this term *irritability* only when speaking of muscle, and to use the word *excitability* when speaking of nerve. Such distinction is worse than useless, it is confusing. I advise you to consider these terms as synonymous, and therefore applicable to the same tissues.

But nerve and muscle are by no means the only tissues which possess irritability. All contractile tissues, all secreting tissues—in short, every living tissue possesses more or less of it. In the histological section of this class you have seen what happens when the plasm of a cartilage cell or that of a white blood corpuscle is irritated. Visible motion is produced; the plasm contracts. In the case of the cartilage you have seen the effects of prolonged irritation. You saw that increase in size, accompanied by divisions of the plasm, had taken place; in other words, motion ending in growth and proliferation had resulted. But all motion results from the action of energy, and so the motion which results in the growth and proliferation of a tissue is, like the more visible motion of a muscle, evidence of the evolution of actual energy.

Every living tissue has irritability; but the results of an irritant differ in different tissues. A gland-cell secretes, a muscle contracts, when irritated, and so on. It would greatly facilitate our progress, as well as widen our conception of living phenomena, if we could hit upon a definition of irritability which would be applicable to any case. I have given no little thought to this important point; and I believe I have arrived at a conclusion which is by no means unimportant. I consider that *a tissue is irritable if, when irritated, it evolve energy*. The form taken by the energy, or the work which it can perform, may differ in different tissues. It may be nerve-motion, the motion which we call contraction, or that which we call growth, and so on. The essence of the whole matter is that the irritant brings about the conversion of potential into actual energy. It causes the potential energy stored up in chemical compounds to undergo conversion into actual energy; in other words, it brings about chemical, and it may be physical, transformations of matter which permit potential energy to become actual. But if we regard irritability as the power of energising on the application of an irritant, what shall we say of a lucifer-match? I show you one. All at rest. The energy in its head is dormant; but I apply the heated wire which caused the nerve and muscle to evolve energy, and see how suddenly its energy starts forth. Now, shall we say that the lucifer-match has, like the nerve and muscle, *irritability?* I decline for the present to return a definite reply to this question. I merely suggest it as one which opens up a most interesting and important line of thought. It is true that some forms of energy produced in living beings differ very decidedly from the forms of energy evolved by inorganic matter. It is true that the chemical compounds which yield the energy in the case of animals are such as do not exist in the inorganic world. It is equally true that the structures which evolve the energy in the living being differ very decidedly from crude things which do not live. It is also true that living things may evolve energy when acted on by agents which are powerless to cause chemical compounds to evolve energy when they are not in connexion with living tissue. But the energy evolved by our lucifer has a source similar to that evolved by the living tissue. What kind of line, then, shall we draw between the two cases? This we must leave for future research to determine.

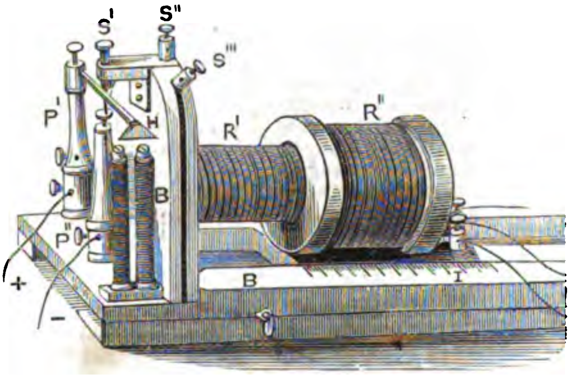
In considering the effect of irritants, two factors must be kept in view. One is, the nature and power of the irritant; the other is, the degree of irritability of the tissue. If you pinch the skin gently, the sensation produced is slight; if you pinch it severely pain results. The difference is due to the different degrees of strength of the irritant. On the other hand—the irritant remaining the same,—we can intensify or diminish the result by raising or depressing the irritability of the tissue. For example, I shall freeze the skin of my attendant's hand by means of ether spray obtained from the ingenious instrument invented by my friend Dr. Richardson. [This was here described.] The skin is now quite frozen. I pinch it. He informs us that he feels nothing. Why? Not because the irritant has been affected by the cold, but because the irritability of the frozen nerves has been depressed. The irritant cannot now cause them to evolve nerve energy. When we increase or diminish the strength of the irritant we increase or diminish the amount of energy brought to bear upon the tissue. When we raise or lower the irritability of the tissue we increase or diminish the proneness of the molecules of the tissue to energise.

Before proceeding to consider all the modes in which the irritability of a tissue may be raised or depressed, I request your attention to some considerations regarding the irritant most commonly employed by physiologists to excite the tissues. I mean

ELECTRICITY.

I presume you are aware that electricity is a dual form of energy. There are two kinds of it, called + and −. These two sorts have remarkable likes and dislikes. + repels +, but it attracts − electricity; and, conversely, − repels −, but attracts + electricity. All bodies seem to be pervaded with these electricities. In those which do not exhibit electrical properties, the + is combined with − electricity. When from any cause the electricities are separated, the body is said to become electrical. The electricities may be separated by *friction*, heat, chemical affinity, contact of heterogeneous substances, &c. [This was illustrated by experiments, which need not here be detailed. I omit also the sketch I gave of the induction and conduction of electricity.]

Fig. 1.



Du Bois Reymond's Induction Machine. R′, Primary coil. R″, Secondary coil. B, Board on which secondary coil can be pushed near to or drawn away from primary coil. The wires from the galvanic battery are attached to the pillars (P′ P″), when a succession of induction currents are to be obtained by the vibration of the spring which bears the armature or hammer (H). If single induction shocks are wanted, the wire — is connected with the screw (S‴), and the primary circuit is opened and closed by depressing or raising the hammer (H), so that the bar which bears it may be disconnected or connected with the point of the screw (S′). An induction current is produced when this primary current is opened or closed. When it is desirable to stimulate muscles by means of the primary current (see works on Electro-therapeutics), the battery wires are attached as represented in the figure, but the wires which are to electrify the muscles are removed from the secondary coil and connected with S″ and S‴.

The two kinds of electricity with which we have most to do are—galvanic or voltaic electricity, and induced or faradic electricity. I have shown you the various batteries used for obtaining galvanism. I now show you the machine (see Figure 1) which we commonly employ in order to get faradic or induced electricity, the kind of electricity most used by us to irritate tissues. In this very convenient induction apparatus, invented by Du Bois Reymond, the secondary coil (R″) is made to glide upon a grooved board (B), so that it can be pushed to or from the primary coil (R′). A millimeter scale is attached to the board, and an indicator (I) to the secondary coil, so that its distance from the primary coil may be known. (The scale has been shortened in the figure.) The strength of the instantaneous currents induced in the secondary coil by the closure or opening of the current in the primary coil is inversely as the distance between the two. Hence the induced or faradic currents are strongest when the secondary is pushed up to the primary coil, so as to surround it. This variation of the distance between the coils is the nicest method of graduating the strength of the induced currents obtained from machines of this sort. The board on which the secondary coil glides should be about a yard in length. The wires connected with the electrodes destined to irritate the tissues are attached to the ends of the wire of the secondary coil. The wires from the galvanic battery (a Daniell, Bunsen, or Grove's cell) are attached to the brass pillars P′ and P″; the negative wire (that from the zinc pole) always to P″. The current passes up the pillar P′, along the thin movable bar of metal, having at its free end a little soft iron "hammer" H. It passes from this bar to the screw S′; thence to S″, around the coil R′, and then round the coil B′; from thence to the pillar P″. (See Fig 2.) The two coils at B′ enclose soft iron; this is rendered magnetic by the current; the hammer H is attracted, the bar which bears it is pulled away from the point of the screw S′, and thereby the current is broken; but the soft iron in B′ then loses its magnetism, and the hammer H flies upwards in virtue of the elasticity of the spring which bears it. It comes again in contact with the screw S′, and so closes the current. These changes take place with extreme rapidity, and, seeing that a momentary current is induced in the secondary coil every time the current is closed and opened in the primary coil, the succession of induced currents is extremely rapid. The current induced by opening is a more powerful irritant than that produced by closing the primary circuit. I have described the arrangement such as proposed by Du Bois Reymond first of all, and such as I employ for all ordinary purposes. The successive induced currents given by the machine are, however, of very unequal strength. To overcome this fault, Helmholtz introduced a modification of the apparatus, which I shall now describe to you. (Fig. 2.) A wire is connected with the pillar P′ at A. Its other end is connected with the screw S′. This screw is elevated so that it cannot come in contact with the horizontal vibrating bar below it, as in Du Bois Reymond's arrangement; but it is now made to come in contact, during its vibration, with a screw (S) placed below it. The electricity enters the pillar P′; the whole of it at first passes through the wire V, the primary coil R′, and the electro-magnetic coil B′; but the moment the soft iron in this is rendered magnetic, the hammer H is drawn down and the bar which bears it is brought into contact with the point above the screw S. This contact completes a much shorter circuit than that round the primary coil, and so by far the larger quantity of the electricity passes up the pillar P′, and down the pillar P″ back to the battery. By the closure of this shorter circuit, the current in the coil B′ is greatly weakened, the soft iron loses most of its magnetism, the hammer springs up, and so on.

FIG. 2.

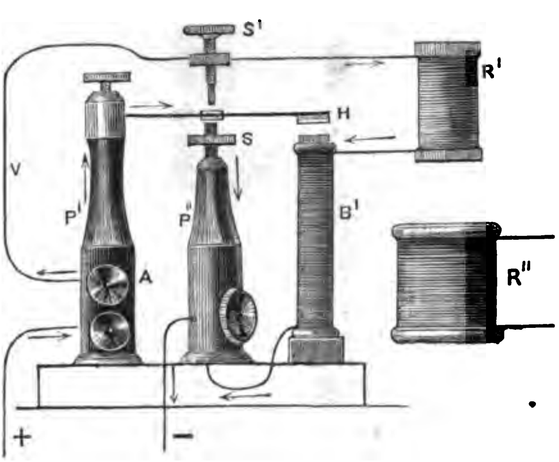
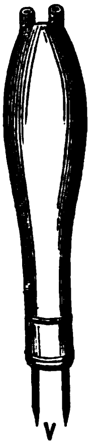


Diagram to illustrate Helmholtz's modification of Du Bois Reymond's machine. The letters are the same as in Fig. 1.

The galvanic current is, however, sometimes employed to stimulate tissues, more especially muscle and nerve. The tension or potential of this current is not nearly so great as that of the faradic or induced current. Hence it is not so powerful an irritant. Yet there are instances where the faradic current fails, while the galvanic current succeeds, in irritating muscular tissue more particularly. The galvanic current may be obtained from Smee's, or other batteries; or if a current of feeble strength only is required, it may be readily obtained by wetting with vinegar a pair of Pulvermacher's galvanic forceps.

Various electrodes are employed for applying the electricity to tissues. Those which I most commonly use for stimulating nerves, &c., consist of two copper wires (Fig 3), fixed in an ebonite handle.

FIG. 3.

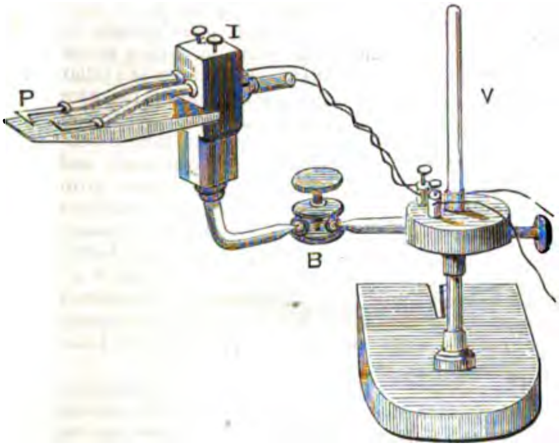


Copper-wire electrodes, in ebonite handle. The ends (V) are applied to tissues. The sockets at the other end of the handle are connected with wires from some source of an electrical current.

The points of the wires (V) project at one end, and on these the nerve is placed. The other ends of the wires are connected with sockets in which the wires which complete the electrical circuit are thrust.

These copper wires are, however, polarisable: when acted on by the juices which bathe the tissues they generate feeble electrical currents. The following electrodes (Fig 4), invented by Du Bois Reymond, are less objectionable in this respect, and useful for many delicate experiments. Two platinum points (P) are connected with brass wires fixed in an ivory block (I). The wires are connected with these. The platinum electrodes lie upon a glass plate. The whole may be rotated in any direction by means of a universal joint (B), and elevated to any height upon a brass pillar (V).

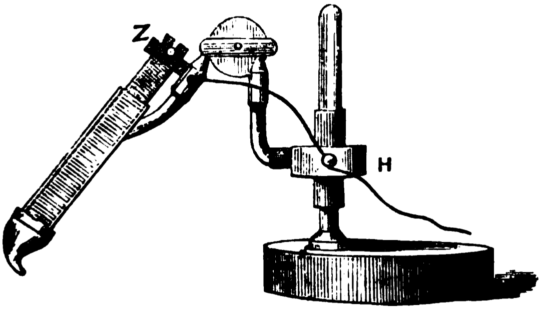
FIG. 4.



Du Bois Reymond's platinum electrodes.

For the most delicate experiments non-polarisable electrodes are essential. These invented by the same physiologist as the preceding, each consist of a glass tube filled with a saturated solution of zinc sulphate in which is immersed a strip of pure amalgamated zinc (Z, Fig. 5). With this is connected a wire (H) to convey the electricity. The lower end of the tube containing the zinc solution is closed with sculptors' clay moistened with saliva or a dilute solution of common salt. The piece of clay may be made of any shape, according to the purpose for which it is required. When nerves are to be laid upon it, it may be bent (as represented in Fig. 5). These non-polarisable electrodes are used, not only for conveying electricity to tissues, but also, and indeed most commonly, for conveying electricity *from* tissues, as in researches on the electrical states of the tissues.

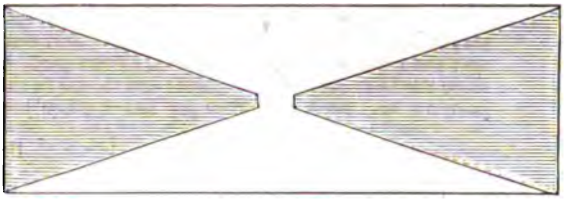
FIG. 5.



One of Du Bois Reymond's clay electrodes.

For applying electrical currents to microscopic objects, I employ triangular pieces of *gold-leaf* (Fig 6) fixed with ordinary gum upon a glass slide.

FIG. 6.

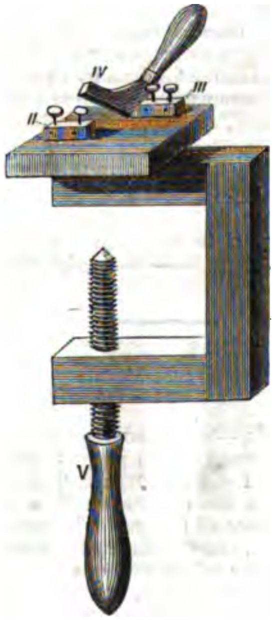


Gold-leaf electrodes for stimulating tissues under the microscope. (The glass slide should be 1 in. broad and 6 in. long.)

This is a modification of Stricker's microscopic electrodes. The tinfoil recommended by him is too thick. The wires are connected with the gold-leaf by simply flattening the end of each wire, laying it on the leaf, and fixing the one to the other by means of an ordinary American clothes-clip. This arrangement is much simpler and cheaper than Stricker's (see Mr. Power's translation of his "Histology," p. 22). By means of it we have, you remember, had no difficulty in sending induction currents through drops of blood under twenty microscopes at a time.

It is useful to have a convenient arrangement for closing and opening an electrical current. An excellent piece of apparatus for this purpose is the electrical key invented by Du Bois Reymond (Fig. 7). It consists of a plate of vulcanite attached to a framework, which can be fixed on a table by means of a screw (V). On the plate are fixed two brass bars for attaching wires (II and III).

FIG. 7.



Du Bois Reymond's electrical key.

These bars may be connected by a movable brass bar (IV), having an ivory handle fixed to it. Commonly one wire is attached to one bar (II), and a second wire to the other (III). When the movable bar (IV) is depressed, the circuit is closed; when it is raised, this is opened. This is the key I always use; but you can make a simpler key if you take a small wide-mouthed bottle, half fill it with mercury, put a cork in it, pierce the cork in two places, put two long needles in the holes, and connect the wires with the upper ends of the needles. Keep the lower end of one needle constantly in the mercury, and push the other one into it when you desire to close the circuit, pull it out when you want to open it.

Fig. 8.

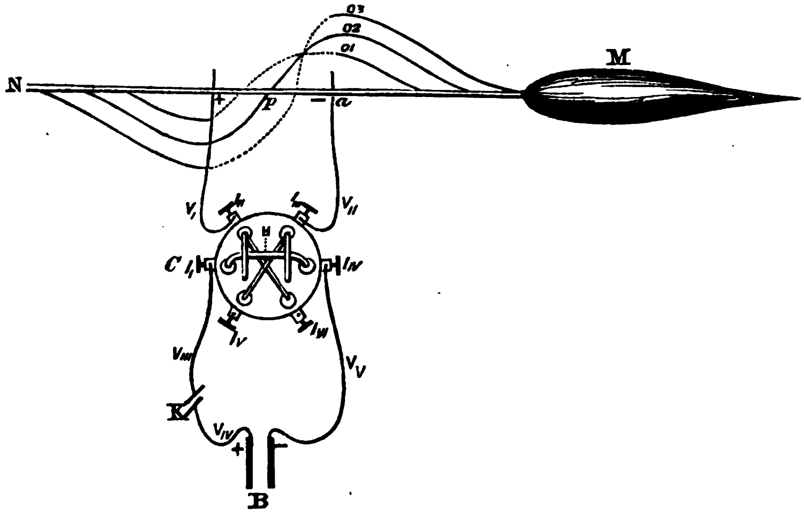


Diagram showing some of the effects of galvanic currents on a nerve, and the arrangements for sending the currents through the nerve. N, Sciatic nerve. M, Gastrocnemius. C, Pohl's commutator. K, Key. B, Battery. V_1, V_2, Wires from commutator to nerve. V_3, V_4, V_5, Wires from battery to commutator. The curves above and below the nerve indicate the variations in the excitability of the nerve produced by the galvanic current, as indicated by Pfluger.

For the sake of convenience, inferior figures are employed in the description and the text, in place of the inferior numerals seen in the diagram.

Note—Figs. 1, 2, 4, and 5 are slight modifications of figures in Morgan's "Electro-Therapeutics." Fig. 7 is from Rosenthal's "Electricitäts Lehre für Mediciner."

LECTURE III.

IRRITABILITY.—(*Continued.*)

GENTLEMEN,—We have seen that every living tissue is possessed of the property which is termed irritability. I defined irritability as the power of energising on the application of a stimulus, and pointed out that all irritants or stimuli are forms of actual energy, and that their action may be referred to their power of producing a commotion in the particles of the tissues, which causes them to evolve certain forms of energy. I further showed you that the result which follows the application of an irritant to any tissue depends on two factors —to wit, the power of the irritant and the irritability of the tissue. We shall now study the means by which the irritability of the tissues may be raised or depressed; in other words, we shall consider how the proneness of the tissues to energise may be increased or diminished. Take care to draw a distinction between the *irritation* of a tissue and the variation of its *irritability*. It is necessary to carefully remember this, for many agents which alter irritability also *irritate* when they are suddenly brought to bear upon the tissue. For example, if heat be applied very gradually to a nerve, its *irritability* is increased; but if a considerable amount of heat be suddenly applied, a commotion resulting in the evolution of energy takes place amid the particles of the nerve; the nerve is *irritated*.

You have witnessed this effect of heat upon the irritability of nerves. You have seen that if heat be removed from the skin the nerves lose their irritability, and regain it when heat is permitted to re-enter the tissue. This effect of temperature seems to be common to all irritable tissues. The withdrawal of heat diminishes, the addition of heat increases, irritability. If, however, too much heat be added, the irritability of the tissue is lowered, and, it may be annihilated. The normal chemical composition of the tissue is of course destroyed.

A galvanic current has a remakable effect upon the irritability of muscle and nerve. It may have a similar influence on other irritable tissues; but this point has not yet been investigated. Let us see what is its influence upon a nerve. In the performance of this experiment it will be necessary for us to send a galvanic current in different directions along a nerve—up the nerve at one time, and down it at another. A convenient instrument for enabling us to alter the direction of the current is Pohl's commutator. This instrument (C, Fig. 8) consists of a circular piece of mahogany, in the upper surface of which are six holes filled with mercury. A brass pin (I_1 &c.), with a screw for fixing a wire, is placed opposite each hole around the circumference of the wooden disc. The hidden ends of these pins communicate with the mercury in the cups. A bridge of copper wire (H) is connected with the upper surface of the instrument. The centre of the bridge consists of glass and sealing-wax, to act as an insulator between its two copper extremities, which rest in two opposite holes (I_1 and I_4) of the commutator. Two curved copper wires are soldered at right angles to the metal part of the bridge. By turning the bridge upon a horizontal axis the ends of these transverse wires may be made to dip into the two mercurial cups to which I point (I_2 and I_3), while by turning the bridge in an opposite direction the curved wires are removed from these holes, and their other ends are brought into the two holes opposite (I_5 and I_6). There are two oblique wires upon the upper surface of the wooden disc. These have no connexion with each other, but join the mercurial cups, into which they dip.

We now take a small Grove's cell, Du Bois Reymond's key, and some insulated wires; connect two wires to the battery; attach one of them to this pin of the commutator (I_4), join the other wire to the key (K), and place a wire between the key and this pin of the commutator (I_1). Join another pair of wires to these pins of the commutator (I_2 and I_3), and push the free ends of these wires through holes in a strip of gutta percha to insulate them. Upon these wires we shall lay our nerve (N). I shall now draw a diagram indicating the arrangement of the apparatus, so that you may be able readily to understand what we are about. (See Fig. 8.) Suppose that the sciatic nerve with the gastrocnemius attached has been laid on the wires, and that we place the handle of the commutator in the position which I have represented in the diagram. On closing the key the current will enter the commutator by I_1, leave it by I_2, and pass down the nerve towards the muscle. In this case the wire nearest the muscle will be the negative pole. But if the handle of the commutator be turned so as to detach it from the cups at I_2 and I_3 and connect it to those at I_5 and I_6, the current will pass from I_1 to I_5, along the oblique wire from I_5 to I_3, and thence to the nerve. In this case the + pole will be nearest the muscle. I now dissect out a sciatic nerve, as you have already seen me do. As usual, I leave it connected with the muscles of the leg. I fix the femur in a pair of forceps on a stand as before, and I lay the nerve on the wires. Now close the key and send the current through the nerve. The muscle contracts. *The current is still passing, but the muscle is at rest.* Open the key, and thereby arrest the current. The muscle contracts again. You irritated the nerve by closing and opening the galvanic current. But you saw that this irritation did not continue as long as the current did. Perhaps you may suppose that the nerve is only affected by the current when it begins and ends. We shall see that such is not the case. We shall see, that although the nerve is *irritated* only when the current begins and ends, its *irritability* is affected all the while. How shall we ascertain that this is the case? In imitation of Eckhard and Pflüger, I place a drop of a strong solution of common salt on the nerve near the wire which is next the muscle. I put the salt on the muscle side of the wire (*a*)...... The toes are now all trembling; the salt is irritating the nerve. The bridge of the commutator has been arranged so that the – pole of the circuit will be the pole nearest to the spot where the salt is acting on the nerve. Now close the key (K). ......You observed that the leg gave a jerk when you did so. That, of course, is quite what you expected it to do; but notice that the movements of the toes *continue to be greatly increased.* This increase is due to the influence of the – pole upon the spot where the saline irritant is acting. Turn the handle of the commutator, and so reverse the direction of the current. The movements of the toes have ceased. Do you fancy that you have killed the nerve? Not at all. The result you witness is only due to the depressing influence of the + pole, which is acting on the irritated piece of nerve. To convince yourselves that the nerve is not dead, reverse the current. Now you see that the toes are moving again more vigorously than ever. We see, therefore, that the negative pole increases the influence of this saline irritant upon the nerve, while the positive pole diminishes it. But now I shall show you something more. The current we have just used was a weak current. We shall now take a battery of *seven* Grove's cells instead of *one*, and send its current through the nerve. Again the – pole is next the saline irritant; but see how different is the result of closing the current now. There was a momentary increase of the tetanus of the muscles on closing the current; but you see that now the toes are at rest, just as if the + pole had been acting on the irritated spot. Reverse the current, and bring the + pole to bear on the seat of irritation: there is no difference—the leg lies still. Reverse the current again: the result is the same. Stop it altogether. See how slowly the movements of the toes are returning. The nerve seems to be recovering from some influence which has been too much for it.

We have seen, then, that when the – pole of a weak galvanic current was brought to bear upon the irritated spot of this nerve, the effect of the irritant was increased; but this same pole, in the case of a much stronger current, reduced the action of the irritant, just as the + pole of both currents did. We cannot believe that these results are due to an action of the galvanism upon the irritant, for the same phenomena are observed when a mechanical stimulus is employed. We are, therefore, compelled to ascribe the results to an influence upon the excitability of the nerve itself. The + pole lowered the excitability; the – pole increased it when the current was weak, but lowered it when the current was very strong. You saw that I placed the salt on a portion of nerve which does not lie between the wires; the irritated spot, therefore, did not form a part of the electrical circuit. Our experiment has, therefore, shown that the poles of a galvanic circuit influence parts of the nerve which lie outside them. Let me simply state that certainly they influence still more the portion of nerve that lies between them.

We may indicate the variations in the irritability of the nerve by curved lines drawn *above* the nerve in the diagram when the excitability is increased, and drawn *below* the nerve when the excitability is diminished. I shall draw lines indicative of the results of experiments performed by Professor Pflüger,* of Bonn, on this subject. I draw three curved lines (o_1, o_2, o_3) above the extra-polar portion of the nerve near the negative pole −, and three similar ones below the nerve in the + extra-polar portion. The three lines indicate three degrees of excitability: o_1 produced by a "weak" current, o_3 that produced by a "strong" current, and o_2 by a current of "medium strength." The lines are furthest from the nerve at the respective poles, because there the polar influence is most marked, becoming less and less as the distance from each pole increases. The part of nerve between the poles is affected in a way which varies with the strength of the current: with a current of "medium strength" it is divided equally between the poles; with a "strong" current the + pole prevails over the greatest extent of nerve; while, as regards a "weak" current, the converse holds true. The intra-polar part of the nerve, whose excitability is not affected, is called the neutral point (*p*). The shifting of this point with currents of different strength is a curious and as yet unexplained fact. These curves indicate, as I have said, Pflüger's results. I give them because they are generally accepted. We have seen, however, that the − pole of a very powerful current *lowers* the excitability. We did, indeed, see that it caused an increase in the excitability for a moment or two, but this merely ushered in a decided depression of the irritability. Pflüger's results, therefore, hold true for somewhat weak currents. They are misleading if this be not remembered. But there is more than this which it is important for you to know. In many experiments which I have performed with regard to this question, I have found that if we operate upon the nerves of weak frogs—for example, frogs that have been kept on water for a winter,—a current such as the *weaker* of the two which I have employed to-day is sufficient *to lower the excitability at the − as well as at the + pole.* If it does not bring this about at once, it does so after it has passed through the nerve for some time. *In weak states of the nerve, therefore, weak currents do what stronger currents are required to do when the nutrition of the nerves is more vigorous.* A galvanic current is often used to lower the excitability of sensory nerves when this is raised above a normal degree. The − pole is more powerful than the + pole in allaying this morbidly increased excitability or hyperæsthesia. Why the − pole should be more efficacious than the + pole I cannot say. Find out the explanation if you can; and, in searching for it, keep in mind these facts: the − pole increases irritability if the current be weak, while it lowers it if the current be powerful or long-continued; the − pole is a more powerful irritant than the + pole. But no doubt you will ask, what is to be considered a *weak* current, and what is to be called a *strong* current for the galvanisation of human nerves? It is impossible to say with anything like precision; for, as I have pointed out, a weak current will, in the case of a weak nerve, do what a stronger current is required to do in the case of a perfectly healthy nerve. Speaking generally, however, we may say that, for human nerves, a galvanic current derived from six to ten Smee's or Daniell's cells is a weak current; while that obtained from fifty to sixty cells is a strong current.

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* Electrotonus. Berlin, 1859.

The state into which a nerve or a muscle is thrown by the passage through it of a galvanic current is termed the electrotonic state of nerve or muscle. In this state all the vital properties of the tissue are affected. It does not, however, at present concern us to inquire into all the changes which the electricity effects. We have meanwhile only to do with the effect upon irritability.

Gentle stimulation of a nerve or a muscle increases its irritability; over-stimulation diminishes it. I take a fresh sciatic nerve and leg of a frog. We shall stimulate the nerve by faradic currents from Du Bois Reymond's machine (Fig. 1). I separate the two coils of the apparatus widely apart. Now apply the electrodes to the nerve, and set the machine in action. Although we are sending currents through the nerve, the muscle remains at rest. Why? Because the irritant is not as yet powerful enough. Push the secondary slowly towards the primary coil of the machine, and in that way find out the weakest current that is able to stimulate the nerve. Now the leg is twitching. Let the secondary coil now remain where it is. We shall permit this feeble stimulus to act on the nerve for half a minute or so. ...... Let us now take a still weaker current, one that was previously unable to stimulate the nerve. ...... You see that a feebler stimulus is now able to affect the tissue. We shall now stimulate the nerve very powerfully for a while, and you will then observe that the weak stimulus which has hitherto proved sufficient to affect the nerve will fail to do so. The nerve will be exhausted by the powerful stimulation.

The nutrition of an irritable tissue has, as one would anticipate, much to do with its irritability. Although we are not going to perform any experiments on this point, I nevertheless allude to it in this connexion for the sake of completeness. You may observe daily how irritable weak persons almost invariably are. You can scarcely avoid treading on their toes in some way or other. They cannot bear the pain borne by stronger persons. Irritants too slight to be heeded by the strong worry and annoy them. This effect of defective nutition upon nerve-tissue is most curious, and demands more careful study than it has hitherto received. Of course if the nutrition of the tissue be completely arrested irritability disappears altogether. The curious point is, that a nerve whose nutrition is to some extent defective should discharge its energy more readily than one whose nutrition is perfect.

Various mechanical influences affect irritability. If you crush or tear an irritable tissue, you injure the structure and lower the irritability. I pinch the end of this nerve with a pair of forceps. The muscle contracts because the nerve is irritated. I pinch the same piece of nerve again; but this time the muscle is motionless. My first pinch destroyed the tissue and annihilated its irritability.

Various chemical agents affect irritability. For example, strychnia affects the irritability of the excito-motor nerve-cells or fibres contained in the spinal cord. It at first increases, and then, if the action be long-continued, it diminishes, the irritability. Let us convince ourselves of this. On pinching the foot of this frog, you see that it jumps away in a vigorous but at the same time sedate manner. It does not seem to be particularly annoyed by such an irritation. We shall see how it answers to our stimulus after it is poisoned with strychnia. .... [A few drops of a solution of strychnia were introduced under the skin. The reasons for this procedure were explained. After waiting for a little while the skin of the animal was merely touched, with the effect of throwing the animal into tetanic spasm.] You see that a mere touch on the skin produces a result far greater than a pinch of the foot did before the animal was poisoned. At present we shall not proceed to ascertain experimentally what are the parts of the nervous system upon which the poison acts. I simply say that the result you witness is due to an increase in the irritability of excito-motor nerve cells or fibres in the spinal cord. The reason why these parts are fixed upon as being the seats of action of the poison will be afterwards shown to you. I now give the animal a large dose of the poison. We shall soon find that a touch or a pinch will fail to call forth any reflex movements. The cause of this is loss of irritability of the excito-motor cells or fibres in the cord. The irritability of the peripheral terminations of voluntary motor nerve is lowered by another poison—curara. .... [Some curara was injected under the skin of another frog. When the motor paralysis had supervened, the skin was removed from the legs, and it was demonstrated that the paralysis was due to loss of irritability by the motor nerves.] Many other substances affect nerve irritability; others affect muscle irritability. But we shall not for the present enter into a further consideration of this matter.

You have seen that the irritability of certain tissues may be affected by various agents. You have seen that some agents increase, while others diminish, the proneness of the tissues to energise. The facts which you have witnessed will doubtless lead you to ask for their explanation. Unhappily, you must accept hypotheses until you or others furnish explanations which are more satisfactory. Bear in mind that the evolution of energy in living tissue implies chemical changes. We may safely say that a certain chemical composition of a tissue is essential for the evolution of energy within it. Now you are doubtless aware that the application of heat to various chemicals increases their proneness to change. How slowly oxygen acts upon iron at ordinary temperatures; how rapid the action becomes when heat is applied; and so on. Heat no doubt plays the same *rôle* with regard to the chemical changes that take place in the tissues. Heat increases the irritability, probably because it increases the proneness to the chemical changes which are usually connected with the energising of the tissue. If too much heat be applied, however, chemical changes take place which result in the death of the tissue. With regard to the influence of chemical agents, it is conceivable that they may combine with, or decompose the molecules of, the tissue, and so after the composition that the evolution of energy takes place more slowly or more rapidly. It is also conceivable, however, that by their mere presence amid the particles of a tissue, they may, without altering their composition, influence their powers of energising. The influence of an electric current upon irritability has been referred by Ranke and others to electrolysis of the tissue. Ranke* has endeavored to show that the acids formed by the current at the + pole lower, while the alkalies formed at the - pole increase, excitability. Du Bois Reymond referred the influence to polarisation of the particles of the tissue: the polarisation at the - pole increasing irritability; that at the + pole diminishing it. I do not think that we are at present in a position to give a decided preference to the one view or to the other.

I enter into these theoretical considerations just for the sake of completeness, and also in order to tempt you to make them subjects for study. In conclusion, I would draw your attention to this interesting fact: if you increase the irritability of a tissue, you cause it to *live faster* than it will do if its irritability be kept low. I have here two frogs' legs, with their nerves. One has been kept in a moist chamber, cooled by iced water dropping upon it; the other has been kept in a similar moist chamber, heated to 100° Fahr. Both have been in these chambers for an hour. I stimulate the cold nerve; the muscle contracts. I stimulate the heated nerve; the muscle is motionless. I stimulate the heated muscle; it contracts feebly. The heat has killed the nerve. But certainly this temperature was not sufficient to kill the tissue at once; on the contrary, it is a temperature which for a time *increases* the irritability of a frog's nerve. The heat seems to accelerate the life of the tissue. Think over this interesting point, and you will not fail to perceive that it is one of much importance.

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The Hunterian Oration

FOR

1871.

DELIVERED AT THE

ROYAL COLLEGE OF SURGEONS OF ENGLAND

On the 14th of February,

By Sir Wm. Fergusson, Bart., F.R.S.,

President of the College, and Serjeant-Surgeon to the Queen.

Mr. President and Gentlemen,—We are met to commemorate the hundred and forty-second anniversary of the natal day of John Hunter.

Although Hunter's death, which occurred in 1793, was lamented, owing to its tragic character, and the prominent position he held as a surgeon and man of science, there was a somewhat tardy recognition of those great qualities for which he has been subsequently eulogised. There were varied opinions among his contemporaries and survivors; and, for seven years after, it seemed doubtful what might become of the palpable remains of his life-long labors in science and surgery. The chief of these, his museum and manuscripts, were in confusion; and there was great danger that they might be so scattered and subdivided that the grand objects of his researches might never have been comprehended. Happily, through the sound judgment of his executors, and the enthusiasm of an apprentice boy, William Clift, the precious relics were held together until purchased as a whole by the Government, and finally placed under the care of this College. In the year 1800 the collection first came under the protection of the Royal College of Surgeons. The proved abilities of young Clift were still devoted to its service; but considerable time elapsed before it acquired more than a beginning to the great reputation subsequently attached to it.

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* Die Lebensbedingungen der Nerven. Leipsic, 1868.

The absence of proper catalogues seems to have been much felt. Hunter had delayed this part of his work, doubtless trusting to leisure time in later years. A gentleman, who might be considered equal to Clift himself in knowledge of the contents and characters of both, undertook the duty, and for that purpose had the manuscripts removed, for convenience, to his own residence. A cartload—literally a cartload—of these were taken possession of, but never again saw the light of day. Years rolled on; trustees, council, and Mr. Clift alike failed to regain possession of the papers, or of the semblance of a catalogue. At last, in 1823, it was announced that these papers had been committed to the flames! It was not until 1813, and after much expense, towards which Parliament liberally contributed, that the Museum was open for public inspection.

Catalogues have been prepared under most proficient skill; the Council has spared neither pains nor expense to enhance its character; and at this date it is indisputably the finest of its kind in the world. The progress of increase seems never to cease; year after year large acquisitions are made by purchase and from donations; and since we last met on an occasion like the present, a collection specially illustrative of dermatology has been added, by the munificence of a member of our Council, which augments in a remarkable degree the value of the whole.

About twenty years after Hunter's death, two of his connexions and most distinguished pupils, Dr. Matthew Baillie and Sir Everard Home, made arrangements for the permanent commemoration of his birthday, and since the year 1813 a ceremony like the present has, with a few intermissions, taken place. A member of the Council of this College is required by the terms of the deed of arrangement to pay tribute to Hunter's memory, and to make passing record of recently deceased members of our profession, whose deeds in life may have had association with the works in which Hunter himself had been interested.

Seventy-seven years have elapsed since the death of Hunter, and his memory is at this date cherished in a greater degree than it was sixty, or even forty, years ago. In the progress of time his works have become more and more appreciated, and with all familiar with them the impression increases in force, that he has left indications of industry and intellect such as have rarely been associated in one individual. In addition to his great Museum, portions of his writings have carried his reputation far beyond the sphere in which that collection is placed, and it is interesting to consider on which his future fame will most depend.

It was specially characteristic in Hunter so to associate the labors of head and hand that it may with many be difficult to determine in which he most excelled. A glance at his Museum fills the mind with wonder that it should have been the work of one man. The few volumes of his collected writings seem small in proportion; but before coming to a conclusion, the contents of each volume, the quality and original thought contained in that small compass, should be well considered; and if, in addition, the enormous quantity of manuscript which he left be taken into the estimate, hesitation may arise in deciding as to the field in which his labor was greatest. The proofs on behalf of his pen, now extant, are small in comparison with the mass of papers unhappily destroyed, including the famous ten folio volumes so much lamented by Mr. Clift. When that gentleman was examined on the subject in 1834, by a Committee of the House of Commons, he enumerated a list of papers and treatises, so extensive in number, and so rare and original in quality, that apparently there had been destroyed much more than enough to have founded an imperishable name and reputation in science and natural history.

It has been rare among physicians and surgeons, considering the numbers of eminence who have flourished, to leave long-standing memorials of their greatness. Their works of skill and art have perished with themselves in a generation. Great statesmen, architects, engineers, and painters have left enduring, palpable proofs of their qualities, and they are known to fame almost solely by such proofs. No writings remain to attest their scientific skill, or to diffuse their individual knowledge to mankind.

It would be too much to expect at this date palpable memorials, such as I refer to, of Hippocrates or Galen; but to come to more recent times, since the study of anatomy has been zealously pursued, how small is the number of great men in our profession whose fame can be traced otherwise than in association with written works. History is quiet regarding any preparations left by Mundinus, the founder of systematic anatomical teaching. No evidence remains of the hand-labor of Vesalius, Albinus, Cheselden, Cowper, and a host of the bygone great. Only a few proofs of William Harvey's dealings in anatomy are preserved in the College of Physicians of London. Happily, the greater part of Ruysch's celebrated first collections is still, I believe, in good condition in St. Petersburg.

The industry of Ruysch as anatomist and writer was marvellous; but our English anatomist had a shorter life by a quarter of a century; and, all things considered, there has probably been no such combination of work in one man as that centred in John Hunter. There may have been more voluminous writers in so far as printed works attest, but the untoward fate of his manuscripts must be borne in mind. In respect of work, in the development of a great museum, it may be fairly said that he stands unequalled; and in the combined qualities of writer and practical anatomist, he is alone in a field where a competitor cannot be named.

It is not, however, in mere industry that Hunter's position is to be estimated, There was an originality of thought and action in all that he did which put him far above the rank of ordinary men in his own department of science. His Museum was not a rambling collection of curiosities in natural history, anatomy, and pathology.. It was specially designed to illustrate his own favorite pursuits: the study of life in all its phases; its causes, nature, and development, from the lowest stage of organisation up to the complex structure of man—from the seeds of vegetables to the eggs of animals—from vegetable sap up to human blood and its products.

An anecdote related by Sir Benjamin Brodie in the Hunterian Oration for 1837 is indicative of Hunter's originality and scope of observation. Sir Benjamin says: "When I was formerly giving lectures as professor of this College, I found in a drawer in the Museum what appeared to be some pieces of dried sticks. Mr. Clift said that he did not know what they meant, but he was sure that they meant something, and therefore he had preserved them. When I examined them, I found that they were the result of some interesting experiments in vegetable physiology. It appeared from one of them that he had made the first and most important of the experiments made many years afterwards by Mr. Andrew Knight, proving the descent of the sap through the vessels of the bark. Yet these specimens had no ostensible place in the Museum, and they would have been swept away as rubbish but for the care of Mr. Clift."

Many illustrations of a like kind might be collected to show how Hunter was ahead of his time; and the conviction is strong that, had his manuscripts been preserved, the value and originality of his museum labours would have been greatly enhanced.

Happily for the character of Hunter and his Museum, the silent testimonies of many of his labors have been admirably deciphered by those who have had the principal care of the preparations. It was, indeed, fortunate that Clift should have devoted his life-labor on behalf of his master's works and fame. Equally fortunate was it that such a man as Owen should have appeared on the scene so opportunely. Nor should the zeal, talent, and industry of Stanley, Quekett, Paget, Morris, Taylor, and others be forgotten in association with Hunter's Museum. To all these gentlemen is chiefly due the merit of those compendious catalogues which throw so much light on Hunter's works and thoughts. It is, in addition, gratifying that the collection is at present under the curatorship of one distinguished alike as anatomist, surgeon, and naturalist, whose work already done gives anticipation of a glorious further career, that shall place his name in association with the Hunters and Cuviers of bygone years.

Few have thought seriously of the time, labor, and expenses of developing museums in association with our profession. It seems doubtful if there was any collection in this country worth speaking of prior to the time of the two Hunters. All the senior part of my professional hearers must remember how, in their earlier days, there was a kind of fashion in regard to the formation of museums. Everyone who devoted himself to teaching anatomy, medicine, or midwifery, set his heart upon such work, and some may have lively and possibly peculiar feelings in regard to the labor, time, and money expended. Happily, by the modern system of aggregation of teachers into schools, such custom has fallen into abeyance. Instead of individual exertion, the effort is made by the whole school, and wealth in this way, pecuniary and scientific, has gradually been accumulated, which only the Hunters could have appreciated.

It is said that William Hunter's collection, now belong to the University of Glasgow, was made at the cost of one hundred thousand pounds. John Hunter's is said to have cost seventy thousand. Through the apathy of a British Minister, who thought that shot and shell were, at the time, of more value to the country than anatomical and pathological specimens, the collection of William Hunter was refused a home in the locality where it had been made. At a subsequent date better feeling prevailed in regard to the younger brother's great works. The purchase-money paid by Government was small compared with the original outlay; but Parliament has again and again responded liberally to appeals for pecuniary aid to extend the buildings for the accommodation of the Museum; and the Royal College of Surgeons of England, dependent solely upon its popularity with the profession and the public, has been enabled so to cherish the original collection of Hunter, so to add to it, and so to associate it with accessories and adjuncts, particularly with a magnificent library, that it is displayed in its present magnitude at a cost of a quarter of a million sterling. This grand possession may be said to be the property of the surgical profession and of the public of England. The trustees, and the Council of this College, are its guardians appointed by law. It is freely open, under reasonable regulations, to all comers, of all quality; and an enthusiast might say, with truth, that it is the heart and soul of British surgery.

Without discussing minutely whether Hunter's future fame will depend chiefly on his Museum or on his printed works, it may be admitted that he is most extensively known by the latter. It is the lot of few, comparatively, to have it in their power to visit the Museum, but his writings extend over the earth, and his doctrines may be said to constitute a large portion of the science of the best practical surgery of the day.

There are mysteries in nature which Hunter did not pretend to explain; and it might be well if some modern philosophers held in mind that the result of life-long study should not be disturbed by the passing idea of a moment, or by the reckless ambition of upsetting or ignoring doctrines emanating from a brain wherein thought had, for more than forty years, assumed a favorite place.

Of all Hunter's printed works, the treatise on the Blood and Inflammation is generally admitted to be the most profound. To my mind, there are no parts so replete with interest as those devoted to Development and Absorption. Yet these, if not forgotten, have been wellnigh smothered in modern verbiage. Separate centres of life, new formations and growths, arrestments and changes of action, irrespective of blood and circulation, are among the fashionable doctrines of the day. "Molecular disintegration" now takes the place of Hunter's "disjunctive absorption." Crude statements about veins doing what Hunter described as being done by absorbents—doing what he positively showed by experiment that they could not; about pus circulating in the blood; about secondary deposits (as they are called) being the direct result of primary deposits,—ignoring the power of nature to make another, and yet another, deposit when she has already made one; rough experiments which have no semblance to nature's actions; modern methods of accounting for malignant disease in various distant parts of the body, as being secondary deposits; are among the recent ways of tampering with the beautiful and philosophic views of Hunter.

A great living philosopher, one who is specially great in facts, has suggested that when the microscope fails to detect the elementary particle, imagination may legitimately be permitted to bridge the gap, and mentally extend our vision. But such philosophy is, after all, far from being new. Shakespeare speculated with imaginary histology. He makes Hamlet, at a prior date, deal with it, as thus:—"Why may not imagination trace the noble dust of Alexander till he find it stopping a bung-hole?" Or, again,—

> "Imperial Cæsar, dead and turned to clay,
> Might stop a hole to keep the wind away."

If imagination is to be a future legitimate course in this direction, let *us* imagine something more noble for the "dust" of our hero than the "base uses" to which that of Alexander, or of Cæsar, was consigned by Hamlet.

If I have thus, in good humor, and, I hope, without offence, ventured to question the superiority of certain modern doctrines over those of Hunter, yet I do not fail to bear in mind how little will occasionally arrest or turn aside the tide of events in our profession. The current is naturally slow and easily obstructed. More than half a century elapsed ere Davy's suggestion regarding anæsthesia in surgical operations was carried into effect. The progress of ovariotomy was retarded for full thirty years by a simple song of local and personal humor. Who can say what may have been the influence of the sarcastic wit of Rabelais, of Butler, and of John Bell on the doctrines of Taliacotius? Du Hamel and John Hunter were the great animal transplanters (if I may so call them) of their days. Here are the celebrated preparations, from Hunter's own hands, of cockspurs and human teeth, taken from their natural locality, flourishing in the cockscomb. Death abruptly cut short Hunter's surgical career; but may we not claim for him, with all deference and honor to Reverdin, Pollock, and others of the day, that he anticipated, by a hundred years, the scientific data on which the present system of human grafting or transplanting is conducted? Here [pointing to a picture] is a representation of portions of skin, each, originally, not bigger than a pin's-head, taken from what Butler would have called the "brawny" part of a boy's arm, flourishing on an ulcer of the leg of an old lady above sixty! What would John Bell, were he now alive, say to this?

But time warns me that I have still other duties to perform within the hour, when my allotted task must be accomplished.

The grave has recently closed over the mortal remains of James Wardrop, Sir William Lawrence, Joseph Hodgson, Sir James Young Simpson, and James Syme. It has seldom happened that so many distinguished men have had claims for notice on occasions similar to this.

James Wardrop possessed great natural abilities, and was an original thinker and actor. His essays "On the Morbid Anatomy of the Human Eye" were much esteemed in their time, and his "Observations on Fungus Hæmatodes," published at an early period of his career, forms to this day the standard work; I may say the only one, on the subject worthy of special note. Some of his published didactic lectures were models of power and simplicity, and his last great work "On Diseases of the Heart" evinced the sagacity acquired by experience and age—a simplicity of practice, and a reliance on nature, which might be expected from a Hunterian disciple. The fact that he was the first surgeon in England who, after the example of Dupuytren, removed a tumour in the lower jaw by total vertical section of the bone, places his name on the list of high-class practical surgeons; and his modification of Brasdor's operation, his original distal operations, and the effect that all have had on this department of practice, bring his name in association with Hunter's as closely as that of any other in the history of British surgery.

Of Sir William Lawrence it seems almost a work of supererogation to speak in this theatre. His intellectual head and brow, expressive features, and manly form, can never pass from the remembrance of those who saw him in his prime. A pupil of Abernethy, and an admirer of Hunter greater than his master, if that were possible, he, of all English surgeons, excelled the most in developing the labors of Hunter in comparative anatomy. The currency which he gave in England to the works of Blumenbach; the taste, eloquence, and ability with which he inculcated the study of comparative anatomy—a subject little more than in its infancy in Lawrence's early days; his mental capacity as anatomist, scholar, and orator; his polemical energy in supporting his favorite views, whether these were scientific or medico-political, marked him in early years as one of the foremost men of the day in the walk of life which he had chosen. He rose, as we all know, to the highest honors to which a surgeon can aspire in this country; but it has often been said, and assented to, that, had he been a member of another profession, he might have risen to the highest rank which a subject in England can reach. His treatise "On Hernia," originally a Jacksonian prize essay, may be considered as the first compendious work on this most important subject which ever came from British surgery; and, although published more than sixty years ago, may, in its fifth edition, be considered the standard of reference at the present day. His treatises "On Diseases of the Eye" gave him great and well-grounded reputation in ophthalmic surgery. His "Introduction to Comparative Anatomy and Physiology," and his "Lectures on Physiology, Zoology, and the Natural History of Man," added largely to his fame in early life. His position as surgeon to the greatest of English hospitals with which our profession is in alliance, his acquirements, his oratorical powers, his repute with the profession and public at large, all made him a man of great note. It gives me much pleasure to state that, on some familiarity with the Hunterian orations that have been delivered in this theatre, the two specially devoted to the subject by Lawrence seem to me among the most eloquent which the occasion has ever called forth.

Joseph Hodgson received a considerable part of his education under Abernethy and Lawrence. He distinguished himself in early life by his treatise on the Diseases of the Arteries and Veins, containing the pathology and treatment of aneurisms and wounded arteries. The work, which in its first stage had secured the Jacksonian prize, was more elaborate than any that had appeared since the Hunterian doctrines on the subject had been recognised and approved. It was comprehensive and practical. The language and composition were simple and easily understood. It was much esteemed at the time, having been translated into German and French; and it forms a worthy companion to the first-class treatises on surgical subjects which have come from many of his contemporaries—such as Scarpa, Astley Cooper, Charles Bell, Brodie, Samuel Cooper, Travers, Colles, Guthrie, Porter, and numerous others. Mr. Hodgson commenced professional life in London, but soon after was induced to settle in Birmingham. In the extensive opportunities afforded for practice in that populous town and surrounding district, he acquired the esteem and confidence of the public and his professional brethren; and for many years no man among the surgeons of Britain was held in greater respect. After a most successful career, he withdrew from the scene of his active labors, and settled in London in dignified retirement. His mind still clung with fondness to the subjects with which it had been most engrossed, and for years his opinion was eagerly sought by his admirers in the profession and among the public. So highly was he esteemed by the Fellows of this College that he was elected to a seat at the Council board, and in due time placed by that board on the Court of Examiners. It must be in the recollection of many here how zealously, honestly, and ably he performed all the varied and often most onerous duties pertaining to such distinctions, and also how gracefully he filled the presidential chair before finally retiring from public life. It was his fortune to be a Hunterian orator. Few others more clearly and zealously appreciated the Hunterian philosophy; and it was a pleasing combination of circumstances which finally brought him out in that character, after he had been long recognised as the chief authority on the operation with which Hunter's name is indelibly associated.

The name of Sir James Young Simpson is deeply impressed on the history of medicine and surgery. His example is one among many in our profession, as well as in others, of what may be called a self-made man. Possessing even fewer advantages than most beginners in life, his individual industry made up the deficiencies. He rarely, if ever, neglected an opportunity of acquiring knowledge. He worked in schoolboy days whilst others played. In early professional life he attracted the notice of Dr. John Thompson, the able expounder of Hunter on Inflammation, and was selected by that distinguished man as a special assistant. The scientific atmosphere in which Thompson lived must have had great influence on Simpson's youthful, I may say latent, talent. The connexion, I have no doubt, went far to favor his claim for the chair of Midwifery in Edinburgh. Once fairly fixed in that position, it became the stand-point whence emanated all his subsequent multifarious, and brilliant intellectual work. In his own special department I do not presume to be a judge, but I imagine that since the days of Smellie, William Hunter, and Denman, he has never been surpassed. In scholarship, in antiquarian lore, and in extent of practice he has had few equals in our profession; and rarely have men earned such distinction as he did out of their ordinary walk in life. The zeal with which he investigated any subject, professional or otherwise, was unbounded, and it has been, I venture to say, fortunate for modern anæsthesia that Simpson lived. Whilst recognising his remarkable discovery and development of the peculiar influence of chloroform, it may in after time be questioned whether he does not deserve equal if not greater credit for the persistence with which he advocated anæsthesia in woman's most trying hour. Sulphuric ether is still by many thought equal if not superior to chloroform, and other agents are in high repute in surgery and dentistry; but Simpson's practical vigor in anæsthesia has never been surpassed, and his name must always remain associated with one of the most remarkable discoveries connected with our profession. Although Simpson's path was more as a physician than a surgeon, he had remarkable proclivities for surgery. These were evinced in every imaginable way in his own special department, but chiefly in his discovery, as I may call it, of acupressure, and the remarkable zeal with which he recommended this mode of closing divided arteries. His forensic powers in advocating the advantages of this practice have never, I imagine, been sufficiently appreciated. His abuse of the ligature would have gratified Paré's most violent enemies, and his modern artillery, consisting in suppuration, absorption, blood-poisoning, pyæmia, and secondary deposits, might, if used in former times, have blown the doctrines of the great Ambrose into thin air. It was in association with this subject that his powers as a special pleader were remarkably displayed; for here he revived and made to appear in a new and original aspect, under the name of surgical fever, all those doctrines regarding symptomatic, sympathetic, or inflammatory fever, which had been in a manner originated by John Hunter, and elaborated by Thompson, Travers, and others. Yet in regard to these matters, we must claim Simpson as a genuine disciple of Hunter. His object was to further adhesion by the first intention, and to avert constitutional irritation. He entertained the idea that needles were less of foreign material, less offensive to nature, than ligatures. This is neither the time nor opportunity to discuss these interesting matters in association with surgery or Simpson's memory, but I cannot resist the opportunity of paying my humble tribute of personal commemoration to one who, in the combined character of physiologist, archæologist, obstetric physician and surgeon, and the giver of the greatest possible good to the greatest possible number, has perhaps never had an equal.

My last tribute in this way shall be in memory of James Syme. Like most who have specially distinguished themselves in surgery, Mr. Syme began his brilliant professional career as a teacher of anatomy. His destiny, however, had been surgery, and he soon relinquished the scalpel of the anatomist for the knife of the surgeon. His success in his newly assumed duties was remarkable. His zeal, earnestness, and ability were speedily recognised; and although at this time he was comparatively quiet, modest, and of retiring habits, he gained hosts of admirers and friends, who forsaw in him the future chief of surgery in Scotland. He had to work his way, I may say stand his ground, in a department already occupied by distinguished teachers—Allan, Turner, Liston, and Lizars; yet the numbers of his pupils speedily became nearly as large as those of the whole of his contemporaries. At this period, before taking office in the Royal Infirmary, he, almost on his single responsibility, instituted a small surgical hospital, which he managed in all its departments with prudence and indomitable energy. Cases of special interest were sent to him from all parts of Scotland, which enabled him to display that great diagnostic power, clear judgment, rare manual dexterity, skill in design, and surgical courage, for all of which he afterwards became so distinguished. It was here also that he speedily evinced those remarkable qualities which made him the ablest clinical teacher of surgery of the day. I remember well the effects of his labors on his immediate pupils. He was their prophet in surgery, and inspired them with entire confidence in his powers. The great tact which he had in making a trivial case in surgery appear almost as interesting as one of the most complicated, was remarkable. Although in reality he had a keen relish for all the great things in surgery, he could clothe the story of a carbuncle or a whitlow with the romance of a diseased elbow—a theme rendered at that time, through his individual exertions, of surpassing interest. The migration of Liston to London left Syme on the well-won throne of practical surgery in Edinburgh and Scotland; and how he held sway, and increased his renown, is well known to all who have watched our schools during the last thirty or forty years. There is scarcely a subject in surgery which he has not touched, and thereby adorned. Besides his standard works "On the Principles of Surgery," "On Excision of Diseased

Joints," "On Diseases of the Rectum," "On the Pathology and Practice of Surgery," and his remarkable papers on Stricture of the Urethra and Perineal Section, he has written more voluminously in the shape of isolated papers on surgical subjects than any practical man that could readily, perhaps possible, be named. His operations on the jaws when they were little known in Britain, his revival of excision of the elbow, his special amputation at the ankle-joint, his ingenious plastic operations on the face, his operations on the great arteries for aneurism (on Hunterian principles, and notably on the old principle), and his bold removals of the entire upper extremity, will indelibly associate his name with the grandest deeds in practical surgery with which we are acquainted. Mr. Syme was in every sense an accomplished surgeon. His preliminary education was good; he had knowledge and skill in modern languages and inborn taste for science and natural history, which he cherished throughout life. But a passion for surgery seemed to dominate in his temperament. Happy for himself that it was so, for it may be justly said that he was king among his fellows; and happy it has been for surgery that such a man should have devoted his great abilities to the embellishment of that department of art and science in which the disciples of John Hunter are so deeply interested.

Such themes are apt to attract too much attention from one in my present position. It must be admitted, however, that they are at least the second object of the founders of this ceremony.

Before making my bow of conclusion I shall revert to the memory of the great man in whose honor we are assembled. In as far as we can make out, his life was happy as it was brilliant, and peculiarly so in that he was enabled, without hindrance, to indulge, to a greater extent than most men ever did, in a natural, useful bias of mind. His professional gains were estimated by himself chiefly in proportion as they enabled him to pursue his studies and increase his accumulations in natural history; and he gratified his desires in this way to an extent as fabulous as history records. Men have given thousands for single pictures, or objects of art; but who, excepting John Hunter, enthusiast above all other anatomists, ever paid five hundred pounds for a human skeleton? That his pursuits were more pleasurable to him than any other work in the world must be undoubted. Look at the results. He, in the course of years, and at the age of sixty-five, accumulated a treasury of facts in his museum and writings, which, from the time of his death to the present day, may be said to have been the fountain-head of modern science in our profession. The streams from thence have flowed in largely varied directions, and no man yet can span the course they may take! Truly his example may excite to emulation. Even the length we may lag behind should induce us to think more highly of the lofty pinnacle where he stands, alone among surgeons! The question between genius and industry is not worth discussion in this case. That he had industry no one can dispute; he has left evidence of it unparalleled among surgeons. I am a firm believer in his genius, but am of opinion that it was so tempered, so overspread, with the spirit of industry, that there was the just balance, so rarely combined in one man, which gives him a pre-eminence among mortals, and a rank in place with the greatest of human beings. He was born, the tenth child of his parents, in a modest country house in Scotland. He seems to have led the idle life of a wayward, petted boy, until twenty years of age, when his action changed, and the dawn of his future greatness appeared. He had neither wealth nor influential friends to further his worldly prospects, yet he rose to be the foremost surgeon and physiologist of his day. He read nature more closely than most other men, and thereby came nearer in communion with the Divine Author of all. Parts of the proofs of his physical labor are treasured within these walls; portions of his mental labor are, in printed form, the property of the world at large; his mortal remains rest beside those of many of England's greatest sons within the hallowed shrine of Westminster Abbey.

Such is, in brief, the story of John Hunter!

Original Papers.

THE CAUSATION OF SCARLATINA.*

By Alfred Carpenter, M.D. Lond.

I propose to consider scarlatina as one of a series of diseases which are epidemic at times, produced by a combined force which results from the effect of matter acting upon blood more or less impure.

The equation $x, y, z =$ epidemic disease, is the first proposition. It is proposed to consider x, y as centric members of the equation—centric, that is, so far as the body is concerned; and that z is excentric or obtained from without. It is proposed to consider that x, y, z may equal typhoid, or typhus, or cholera, or scarlatina according to the particular quality or power of the member z. In the equation, z is assumed to be the constant quality of used-up material—the débris which naturally results from the act of living, ever present in every person, and always being removed in those who are healthy by various excretory organs. If all organs were perfectly healthy, z would be constant in quantity; but as this is not often the case, y puts in an appearance, and represents the change which results from the effect or disorder upon one or more organs: it is a variable and unknown quantity, and a necessary result of imperfect excretory function. z is a something not belonging to the human economy. It is introduced from without; and, by its effect upon x, y, sets up an action represented as x, y, z, which equals epidemic disease. Now, upon the quality of z depends the character of the disease set up.

The proposition, therefore, is that x being a constant quantity, y will vary according to the circumstances in which a community is placed as to its moral and its sanitary state, and its obedience to sanitary laws. If by their neglect the conditions requisite for the increase of y have arisen, a state of system is produced favorable for the production of epidemics. If z is then imported, the epidemic will be more or less fatal according to the value of the quantity y and the concentrated state of the excentric factor z. If sanitary laws have been fairly observed, then the effect of z, whenever imported, will be a minimum, and, in the case of scarlatina, will produce the mildest possible form of epidemic.

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* Read at the meeting of the Medical Society of London held on the 16th of January, 1871.

The writer proposes to show what is the nature of this factor *z* upon which he assumes that scarlatina depends.

Hitherto it has been found that scarlatina is less amenable to prophylactic measures than some other enthetic diseases. It does not depart from those places in which the usual sanitary operations have been carried out, such as the supply of pure water, the abolition of cesspools, and the construction of properly designed sewers. It has therefore an element in its total somewhat distinct from typhus and typhoid. It has a relationship to them, inasmuch as it appears to make itself felt at times more fatally in those very places from which the two former have been banished. As it appears that typhoid is often most prevalent in those towns from which typhus has been routed, so scarlatina is more constant in those districts from which typhoid has been more or less perfectly removed. Just now it is much more general and more fatal than typhus, though closely allied to it in some of its prominent symptoms.

There are two opinions current regarding the origin of scarlatina in a given district from which it had been previously absent. One is that the primary cause of the outbreak is infection from some preceding case. It is assumed to be, like small-pox, unable to arise without its advent being preceded by some atom or germ of matter developed in a former case of the same disease, and carried in some way to its present habitat; or, if produced there, that the atom must have lain dormant until kindled into activity by some predisposing or exciting causes not always existing. Those who hold this opinion consider that the disease will be only combated by disinfection and complete isolation; they would stamp it out like small-pox or rinderpest; and some think that a measure yet to be discovered, allied to vaccination, will be a very effectual preventive agent. The other opinion, and the one to which I hold, is, that though highly infectious when actually present, and when brought into contact with material prone to take on the distinctive character of the disease, yet it may, and often does, arise *de novo*, having an apparently spontaneous origin in any position in which the elements required for its development are brought together and then exposed to the proper physical influences necessary for its growth. It has been proved most decidedly that it is not prevented by ordinary sanitary means; that it occurs in clean places and among clean people, as well as among the dwellers in filth and wretchedness. This peculiarity in its natural history may be accounted for because the element which is necessary for its production has not been recognised, just as the prime factor in the production of typhoid was not until just lately fully understood. It can, however, be clearly shown by experience in my district that cleanliness and continued attention to sanitary laws have a great effect in diminishing the mortality from the disease, and in materially limiting its tendency to spread among the same class of people; and though cases do continually occur, they are found to be of the mildest possible form, and do not easily increase among those who by chance have been exposed to infection. When cases do arise either by immediate development or by infection, they are found to be of the mildest character, and are neither accompanied nor followed by those attendants which often severely complicate scarlatina epidemics, and those sequelæ which protract convalescence.

I will now try to prove my proposition. Let *x*, *y*, *z* represent typhus. If *z* be made to equal the aggregate of filth, foul air, and bad food (which are known factors in the production of typhus), and these be removed, *x*, *y* alone remains, and typhus does not arise. If *z* now equal sewer gas or any cacozyme, the product of decomposing and flesh-feeding animal excrement, then typhoid arises. If we remove the possibility for the admission of the typhoid factor, the latter disease is also prevented, *x*, *y* still remaining. Let *z* now equal the prime factor in the production of scarlatina. If *z* is kept at a minimum, or if it be dwarfed or destroyed, scarlatina will not arise; the disease will die out for want of its factor *z*, and the partial conditions then present so dwarfed and stunted as to produce some other tendencies. It is evident that this view is only sound if the disease can arise *de novo;* not if it is, like small-pox, only capable of being reproduced by its own proper germ derived from some preceding case—that is, if scarlatina equals *z*, an entity in itself, and not a compound like *x*, *y*, *z*. Isolation and negative inferences may enable us to determine these points, and prevent the necessity which is supposed to exist on the other view of imputing the cause of a given outbreak to some letter, newspaper, or other simple matter which has been touched by a patient, or has, perhaps, only been handled by some one who has touched or seen a case of scarlatina. Such explanations are as difficult to prove as they are incapable of disproof, and are only brought forward to overcome the difficulty of a new origin.

It is concluded that *z* is an atom resulting from incipient decomposition of the blood of vertebrate animals, either healthy or diseased, under the influence of certain conditions of temperature, magnetic state, and moisture; that this atom is probably more virulent when produced from diseased material; that some of the granules contained in blood undergo a certain corpuscular degeneration, and are the actual exciting agents in the production of the fever by altering the character of the natural zymosis which is said to be always proceeding within the body. When once the disease has been produced, a granular matter is given off as a débris from both skin and moist mucous tissue, which reproduces the disease in others whenever *y* is present. If *y* is not present, or that part of *y* upon which *z* is enabled to exert its influence, then the person escapes; for *x*, *z* cannot become scarlatina. According, therefore, to the prevalence of the unknown quantity *y* will be the susceptibility of a number of people to become rapidly infected.

This theory is supported by the following facts, which have been met with within the last eight years, and are now brought forward in the hope that the more extended observations of others may corroborate the idea if it is right.

Observation 1.—The children of B. B——, living in a well-ventilated house on a hill side, were all seized with scarlatina in the month of September, 1864. For three or four days previously the house had been pervaded with a most nauseous smell, which proceeded from some market gardens to windward of the house. The wind had blown very quietly from the same quarter all that time. The weather had been very hot, and was moderately dry. The miasms from the gardens below seemed to hang upon the crest of the hill. There was no scarlatina prevalent in the place, and there was no known communication with any other house in which scarlatina had occurred. The servants denied that they had visited any infected houses, and the children had not been away from the hill for some time previously. Six cases occurred in that house, all commencing within forty-eight hours of each other. They were all mild in character, they ran the usual course, and each recovered in the ordinary time. The infection did not spread to others, the ordinary measures of isolation and disinfection being at once employed.

At the same time, and upon the same hill, and within the same forty-eight hours, two other families had children affected with the disease, of the like mild character, and with a similar result. The inmates of these houses were not known to each other, the children had not played together, the servants were not acquainted, they did not employ the same laundresses or the same milkmen, and scarcely the same tradesmen. Everything seemed arranged so as to make it conclusive that the miasms from the market gardens were the cause of the disease. These miasms were produced by slaughter-house refuse, with which the market gardens had been manured. The manure had been spread upon the ground as a top dressing, in dry weather, and had not been ploughed in, and at a time when there was a marked absence of ozone. Complaint was made to the local authority upon the subject. The epidemic ceased immediately the nuisance was removed by the manure being ploughed in; and no other cases, as far as could be ascertained, occurred at that place at that time.

Observation 2.—In the autumn of 1865 a nauseous sickening odor pervaded the neighborhood of Park-hill and Croham, near to Croydon. This odor was traced to the application of slaughter-house manure to a field at Croham. This manure had been brought by railway from London, and spread upon the soil for some time before it was ploughed into it. Four or five days afterwards cases of scarlatina occurred simultaneously in three large schools in that neighborhood, several persons being attacked in each establishment. The first cases commenced in each school within three days of each other, whilst no known intercommunication —whether by milkman, laundress, or butcher—existed between them. One school consisted of about 120 children, belonging to the Society of Friends; the second was a girls' school, about two hundred yards from the first; and the third a boys' school, about a hundred yards further on. They were all situated on different lines of sewers; and there did not appear to be anything in common to account for the attacks of coincident illness. It could not be proved that scarlatina did not exist in the neighborhood before the manure complained of was spread abroad. A few cases had been reported in the town before the outbreak; a good many also occurred afterwards. They were not fatal, and the epidemic did not extend to any poor neighborhood.

Observation 3.—The end of 1862 and the begining of 1863 were noted for the number of fatal cases of scarlatina which occurred mainly in a district north and west of the East Croydon Railway station-yard. Into that yard at that time much offensive manure used to be brought from the London markets, and from thence it was carted into the country, but the trucks sometimes used to remain some days before being removed. Public complaints were made to the local authority by the neighbors, and, after a time, the practice was discontinued. The death-rate from scarlatina has never been so high in Croydon district as on that occasion, equalling 1·64 per 1000 of population living and 9·69 per cent. of gross mortality. This coincidence may not be due to cause and effect, but it is suggestive when it is seen that the table land around the station-yard, especially that most open to its influence on the north-west, was the situation in which most of the fatal cases occurred, though this may also to some extent have been modified by the fact that at that time very little had been done for the perfect ventilation of the sewers; and it is possible, therefore, that the prime cause might have been more rapidly spread by them.

Observation 4.—The children of G. W——, inhabiting a clean, well-ventilated house at Addiscombe, occasionally became subject one by one to scarlatina. The first origin of the disease was most clearly traced to a certain room occasionally used as a sleeping room. This apartment was placed over a fowl-house, which, on examination, was found to contain much bird excrement. It was also the place in which the fowls were killed, and therefore contained blood. It was noted that the cases occurred during or after very hot nights, and markedly when ozone was absent, as on Sept. 15th, 1865, when the last case arose. The sleeping-room smelt rather stuffy, and, although the ceiling between the fowl-house and the room above was a closed one, it was evident from the odor that miasm of some kind or other did arise, and find its way into the room. After each case the room had always been disinfected, and every care taken to remove contagion; but until the fowl-house was altered, and the guano removed, the occasional occurrence of cases took place. This alteration was made in 1865. Since that time, though the children in the family have increased in number by the addition of one each year, and the room almost continually slept in, no other case of scarlatina have occurred there.

Observation 5.—A large school existed in Croydon, which on several occasions had been broken up by reason of outbreaks of scarlatina. Eventually the master gave up the house, and it became disused for a time. It was then discovered that a very large cesspool under the children's playground had not been filled up when the privy was changed into a watercloset some years before. This cesspool seemed at times to receive the washings from a neighboring slaughter-house, and doubtless some blood by the same means. This cesspool was filled in, and the slaughter-house had its connexion made more correctly with the sewer. The house has been inhabited again for several years by a large family— the gentleman, head of the establishment, taking pupils; but scarlatina has not appeared there since.

Observation 6.—Scarlatina became suddenly very prevalent in the village of W—— W——, four miles from Croydon, in the autumn of 1865. The disease was not known to be prevalent in the neighborhood. It began close to the only slaughter-house in the village, and from thence spread to nearly all the children in the place. It made its appearance soon after some cleansing operations had been performed, and a great stench had been set up in the neighborhood. The origin of this outbreak has been inferred only, as there may have been previous infection, which had been spread by the children at the village school. It is believed, however, that the slaughter-house refuse had most to do with it.

Observation 7.—The village of S—— C——, near Sevenoaks, was in a similar manner severely visited by scarlatina in the autumn of last year. The writer has no personal knowledge of this case, but he is informed, on reliable authority, that the public well is in close proximity to the slaughter-house of the district; and it was proved by analysis that the water of that well was contaminated with blood products.

Observation 8.—The writer mentioned his suspicions regarding blood, decomposing under certain states, as a factor in the production of scarlatina, to a gentleman residing in the neighborhood. Soon afterwards, as that person rode by a neighbor's house on the Surrey hills, he observed a quantity of blood and animal offal lying on a manure heap, near to his neighbor's dwelling. He spoke to the owner, and told him that his children would have scarlatina if that stuff was left there while they played about the yard. The man laughed at him, and said it was the place at which they had always deposited the offal from the animals killed there, and that no harm had ever arisen. This was during some hot days in June, 1869. Early in July one of his children died of scarlatina. There was none in the neighborhood. The house was at some distance from any other, and it is not known that the children who were affected had caught it from any particular source.

Observation 9.—Seven boys occupying seven different chambers in a large public school were all affected with scarlatina within a short time of one another. It was concluded that a very large number in the school would necessarily be affected, as so many centres of infection seemed at once to exist. Most admirable measures were, however, taken by the school authorities to prevent the spread of contagion, and the anticipations were not realised; for no other cases occurred in that portion of the school. These boys were college boys, none of whom were allowed to go out of bounds, except on particular days, and then only when leave had been obtained to visit friends. The seven had, with many others, had such leave on one particular day. Scarlatina at that time prevailed in the town, and the child of a neighboring butcher died that day. The butcher's shop had been most offensive during some preceding hot weather, and his slaughter-house was close to the confectioner's shop, around which the boys were accustomed to loiter. The authorities of the school did not make out any clear cause for the production of the disease from any other source. It appears to the writer that the sprinkling of cases thus appearing showed a source outside the school. The immediate removal of the affected, to wards altogether away from the college prevented its spread among the healthy boys; and so no "leave-out" days occurred for some time, the immediate cause of the disease was removed before it could produce further mischief, and severe weather settling in stayed its further progress there.

The spontaneous origin of scarlatina is also occasionally shown in the colonies. Thus in 1848 it suddenly made its appearance in Auckland, New Zealand. No communication had existed with any other place by sea for four months previous to the outbreak. An emigrant ship had arrived the preceding January, but no case of scarlatina had occurred during the voyage out. The first two cases occurred in different streets on the same day. Simultaneously with its appearance at Auckland it also appeared in Sydney. It was not shown in the report that blood was the source, but as in every place where Europeans, and especially Englishmen, live blood is often allowed to lie on the ground, and animals to be slaughtered without reference to any sanitary regulations, it is evident that, if I have indicated the right cause, it may exist anywhere.

If the disease can arise spontaneously, any measures that may be taken by the local authority or the imperial government on the idea that it is produced by contagion alone, will fail. It becomes necessary therefore to get rid of that idea; but at the same time it is not to be assumed that by the term "spontaneous" it is meant that the disease will arise without a first cause. It is contended that the molecules contained in blood—the germinal matter upon which probably the vital force of the animal depends—do, under certain conditions of air, moisture, and magnetic action, become so changed as to be able to set up one or other of the epidemic diseases of the scarlatina type. If these molecules get admission into the blood of a living person, they rapidly produce an action of a zymotic character, and probably set free a product allied to the formic acid series, which, being expelled by the capillaries in minute quantities, sets up the state of the skin which is so indicative of the disease under consideration, and allies it with erysipelas, some forms of puerperal disease, and especially those rashes which are sometimes seen to arise in surgical cases, and which may be caused by decomposing blood in the body of the patient himself.

Annexed is a table which shows the rise and fall of the death-rate from scarlatina during the last 22 years in Croydon. It gives negative evidence, but it points out some important facts.

Table showing the occasional rise of Scarlatina since 1848 *in Croydon.*

Year.	Population	General Death-rate.	Deaths from Scarlatina.			Remarks.
			Per 1000.		Total No.	
			Living.	Deaths.		
1848	19,386	28	0·90	32·9	18	
1849	20,000	26	1·81	70·0	36	Epidemic
1850	20,100	19	1·09	56·9	22	
1851	20,355	19	0·14	0·79	3	
1852	21,185	22	1·65	72·0	35	Epidemic
1853	22,200	26	1·216	44·1	27	
1854	23,560	26	0·680	25·6	16	
1855	25,887	19	0·154	0·78	4	
1856	26,734	18	0·37	21·5	10	
1857	28,000	16	0·17	11·4	5	
1858	28,000	19	0·535	28·5	15	
1859	29,170	19	0·96	52·0	28	
1860	30,000	16	0·20	11·8	6	
1861	31,000	18	0·16	9·8	5	
1862	31,912	18	0·96	50·1	30	
1863	35,332	20	1·64	96·9	69	Epidemic
1864	37,864	20	0·60	28·9	23	
1865	41,381	22	0·89	42·0	37	
1866	45,238	20	0·42	20·0	19	
1867	50,755	16·6	0·374	22·0	19	
1868	58,278	18·36	0·756	41·12	44	
1869	60,000	17·24	1·366	72·7	86	Epidemic
1870	62,000	17·62	1·144	58·0	71	

There have been four epidemics, though it has never been quite absent for long altogether; every quarter of the year has had its quota of cases, but it is seen that the largest number generally occurred in the last four months of the year, although in 1849 and again in 1868 it was in the first half of the year that the greatest mortality occurred. Dr. B. W. Richardson has published a statement showing the average mortality in London from scarlatina per 1000 of living population, derived from statistics extending over seven years. This is fixed by him at 1·10, whilst we have had it several times above the London average. The excessive mortality would seem at first sight to be opposed to the idea that sanitary supervision diminished mortality, but by dissecting the cases the result is shown to be as represented. The poor have provided 95 per cent. of the fatal cases, whilst the mortality among the citizen class has been very slight; and it is to be borne in mind that the citizen class form in Croydon a very considerable moiety of the whole population.

The analysis of deaths at various ages for the past two years exhibits some differences when compared with Dr. Richardson's tables. He makes the ages of those dying at five and under equal to 67·63 per cent.; between five and ten, 24·27 per cent,; above ten, 8 per cent. In Croydon, at five and under they equal 76·5 per cent.; between five and ten, they are 12·6 per cent; above ten, 10·9 per cent. It is, however, in the first two years that the greatest difference exists: thus Dr. Richardson's table shows a mortality at two and under as 32·24 per cent.; but in Croydon it has been 63·7 per cent. of the whole.

From this result it may fairly be assumed that the chances of life being extinguished by scarlatina are greatest in those who live least in the open air, and that children in arms, from some cause, have the largest mortality, and of these it has been seen that a large per-centage consist of children brought up by hand. It is also interesting to note that for some time no part of the year has been free from the evidence of the presence of scarlatina, as shown in the following table of deaths in every month during the past two years.

	1869.	1870.
January	10	10
February	6	4
March	5	11
April	4	2
May	4	5
June	3	4
July	8	11
August	7	4
September	12	6
October	11	4
November	6	6
December	15	4
Total	86	71

The next point to which the writer has directed special attention has been the locality in which the deaths have occurred. They have taken place in 46 streets or roads out of the 256 existing in the parish. Three districts have had the largest numbers of fatal cases, single dots upon the map alone marking other parts of the parish. There is only one point common to each of these three districts: they are comparatively flat; they have lines of sewers a long distance from the outfall, and, as far as the poor are concerned, the house-connexions with the sewers are imperfectly ventilated, and, most significantly, they have slaughter-houses in connexion with these lines of sewer. One of these districts is mainly on chalk; the second is principally a clay subsoil; whilst the third has clay upon gravel, or gravel upon chalk, as its principal substratum. It follows from this that terrestrial or subsoil influence has not been exerted as far as gravel, chalk, and clay are concerned. One of the districts has in it a number of badly made roads, and until recently they were not under the supervision of the local authority. These roads became swamps after every heavy rainfall. This district contained the largest number of fatal cases. There are two very observable facts with regard to the houses in which the fatal cases occurred. The majority of deaths took place in comparatively new houses; many of them built without foundations upon garden-ground, the aluvial soil not being removed, except such of it as was used for mortar. This garden-mould, with its débris of manure (often animal), was simply screened, scarcely more lime being used than was sufficient to make it sticky. The houses were frequently occupied before they were dry; and it is evident that a low state of general health must be induced by living in an atmosphere such as would exist in such buildings. Of the whole of the fatal cases, about 92 per cent. occurred in cottage property, and about 80 per cent. in houses which have been built within the last five or six years.

An analysis of a table of the absolute mortality from scarlatina shows a decreasing mortality in each of the four epidemics which have arisen in the last twenty years, if we compare the deaths with the total population. Thus, in 1849, it was 1·81 per 1000 living; in 1852, 1·65; in 1863, 1·64; in 1869, 1·366; in 1870, 1·144. The largest mortality in any given month has been after a continuance of hot weather, often closely following upon heavy rains, though rain itself does not increase the tendency to the disease, for a continuous wet season has been comparatively free from it. This fact corresponds with observations made by Dr. Ballard. The heavy rains must come after a hot, dry season to be most effectual. Then the badly made roads become swampy; the badly laid sewers have the deposit stirred up in them, and developed gases find their way in a comparatively concentrated form into the houses, both by means of unventilated sewers, and through the soil of the foundations of the new cottages. The children of the poor suffered most, being compelled to live in an impure atmosphere, by which the member y in the equation became inordinately increased, and this class therefore afforded the largest number of victims.

This theory is borne out by my own experience. I have had under my care during the last ten years 286 cases. The greater number of these have occurred in children between the ages of six and twelve, very few infants having suffered at all. About one-fifth have taken the disease at school; others have fallen ill after visiting a neighborhood in which it has been prevalent. In only two instances has there been a spread of the disease to other members of the family. Not one of these 286 cases terminated fatally. Four had renal dropsy as a sequence, and two acute rheumatism. Those were all cases which were brought home from other places. Very few suffered much from throat mischief.

These facts do not support the view which is often expressed, that mild cases are more likely to have sequelæ than severe ones. The freedom from fatal results which has attended these cases arose from the fact that they all occurred among the comparatively wealthy classes; they were all well fed, had pure air, pure water, and had not imbibed any of those matters which increase the amount of y in the system. A moderate system of isolation and disinfection only was adopted. In a few cases the symptoms were severe; but that severity was always accompanied by evidence of imperfect ventilation, either of the house itself or of the sewers belonging to the house, or dirty habits. The cases were distributed in all parts of the parish, fairly mixed up with the poorer populations, and notwithstanding the high mortality among the children of the poor and the complete absence of any kind of isolation and disinfection among them. When the disease appeared in the residences of their richer neighbors, the type was changed into one of a mild form; the constitutions of the new recipients of the infection not having been lowered by an increase of y from breathing a sewer atmosphere, by drinking impure water, or inhaling anything derived from the products of cesspool or animal putrefaction. Several of the cases are believed to have been produced in children after playing about the manure heaps deposited in the gardens, two or three distinct and very suggestive instances having presented themselves of children suffering after slaughter-house and pig manure had been so used. Great difficulty has also been experienced in keeping blood out of the sewers; when it does get in, it cannot be flushed away, as it often adheres to the surface of the sewer until decomposition enables it to separate, and it then gives out products corresponding to z in the equation.*

I believe that scarlatina would be shorn of its fatal tendency if blood was not allowed to be shed in our towns and villages, except with certain precautions, so that none should enter our sewers; if our houses were built on proper foundations and well ventilated, and if pure water were always provided for the people; if sewers were so constructed as to be self-ventilating, and that continuously, and so arranged that the products of excrement putrefaction could not possibly pollute the air of dwelling-houses.

The record of 286 cases, extending over a period of ten years, being all the cases I have continuously attended upon without a fatal result, and that in a district in which 403 fatal cases did occur during the same period of time, the mild cases mixing with the severe ones, and deriving their origin from corresponding sources, must point to some exceptional cause for such an exceptional result. I believe the exceptional causes to be the circumstances mentioned; and that scarlatina is as amenable as typhus to sanitary operations; that it can be generated *de novo;* and that if the portion represented by the member z falls into the blood of a patient which is not loaded with impurity caused by defective sanitary measures, and here represented by y, then its effects will be comparatively harmless, and the $x\ y\ z$ will give scarlatina of the mildest possible type, and will be quite free from danger to the recipient, sequelæ will not follow, and very moderate means of isolation and disinfection, with—most important point of all—free ventilation and fresh air, will be quite sufficient to prevent any spread of the disease.

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* I should have mentioned here the frequent connexion between scarlatina and puerperal fever. All cases of that disease which I have met with, and which have arisen without good evidence of infection, have been attended by the presence of putrid blood in an uncontracted womb. In some cases in which scarlatina has been developed in lying-in houses, there has been evidence of neglect in removing the results of hæmorrhage, clots of blood being left about the bed, or blood has soaked into the bed and not removed. In some cases I have had reason to doubt the wisdom with which the nurse has disposed of the placenta and clots of blood following upon delivery; for outbreaks of scarlatina are so often coincident with confinements in various localities that I think the medical attendant would do well to inquire as to its disposal, and not allowi t to go into the cesspool or the sewer. Placentæ are often found at our outfall.

AN IMPROVED METHOD OF DIVIDING THE PEDICLE IN OVARIOTOMY.

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The only step in the operation of ovariotomy to which the writer wishes at present to refer is the mode of dividing the pedicle, certainly not the least important or the least anxious which the surgeon has to consider.

Whatever method the operator employs to separate the ovarian tumour from its connexion with the uterus, he must desire—

1st. To arrest bleeding effectually and permanently.

2nd. To injure as little as can be the stump which remains.

3rd. To separate the growth and treat the remnant of the pedicle in such a way as to occasion least chance of peritonitis.

4th. To return no dead tissue, or structures likely to decompose (and be a source of septic poisoning), within the abdominal cavity.

5th. To displace the uterus and its appendages as little as need be from their normal position.

6th and lastly. To close the abdominal cavity as quickly and as completely as possible.

It will in no small measure depend on how these ends are fulfilled what risk is run of hæmorrhage, peritonitis, and shock—the three great sources of mortality after ovariotomy.

The different plans in use of securing the pedicle may be thus summarised:—

1. Tying it in one, two, or more portions with whipcord or silk, catgut or wire,—the pedicle being divided a short distance on the distal side of the constriction. The stump is either fixed in the wound; or (when any of the agents mentioned are used except wire) the ligatures are cut short and returned with the stump into the abdomen; or, being uncut, are fixed in the lower part of the wound, while the stump is dropped as before.
2. The pedicle is strongly constricted by a clamp, the growth cut away, and the stump fixed in the wound.
3. The division of the pedicle and the closure of its vessels may be achieved by the actual cautery, the stump being afterwards returned, or retained in the wound.
4. The peritoneal covering of the pedicle being first incised, and then the pedicle, after which each separate vessel is taken up and tied, and the stump restored into the abdomen or fixed in the wound.
5. The écraseur has been employed to separate the ovarian tumour.
6. The pedicle having been transfixed by a strong ligature, and a long pin being passed through it and both lips of the wound, the ligature has been firmly twisted round the pin.

A consideration of the whole circumstances of the operation must impress the surgeon with the extreme desirableness of restoring the stump of the pedicle at once into the abdomen, if that can be accomplished without greater risk than attends its fixture in the wound. What has hitherto prevented this replacement being carried out was the peril of hæmorrhage and the injurious effects of returning tissue tending to decompose—the direct result of the mode in which the pedicle had been severed.

When we ligature the pedicle (whatever agent we employ for the purpose) we necessarily kill a certain amount of tissue distal to the place of constriction, and to return this (and any portion, however limited, of the ligature) into the peritoneal cavity must be attended with manifest danger, though, happily, such danger does not always eventuate in catastrophe. If, again, we leave the ligatures long and drop the stump, we add for a time (often many days) to the risk of having decomposing tissue in the abdominal cavity the additional hazard of keeping that cavity open, and traversed by materials which cannot fail to imbibe septic elements, and serve as conductors of secretions into the depths of the pelvis.

If, again, by the clamp or other means we fix the stump in the wound we cannot quickly or effectually close the abdominal cavity, or ensure it against the entrance of decomposing secretions by the side of the pedicle; and, what is much worse, and in fact is well known to augment greatly the peril of the operation, the uterus is violently dragged from its place and twisted on itself. That the clamp is no complete safeguard against bleeding is amply testified by the records of ovariotomy, and that its use necessarily retards recovery may be conceded.

That the écraseur has failed effectually to command hæmorrhage, and that it causes so great a mangling of the stump as to occasion subsequent fatal inflammation, is only what those who have used it most would anticipate.

The cautery has frequently failed as a hæmostatic agent in ovariotomy (the bleeding being sometimes early and occasionally late of appearing), and its action is so violent that much tissue is killed; and so, if the stump is returned, the objection made to the ligature cut short holds; if it is not restored, then the same difficulty which attends the use of the clamp presents itself.

Of the results obtained from the division of the pedicle and the separate deligation of its vessels, the writer knows very little, but from its rare employment in this country he supposes they could not have been promising. There would be the hazard of foreign bodies placed within the cavity, the greater risk of vessels subsequently bleeding which were not at first observed, and the occurrence of oozing which no ligatures can effectually command.

Regarding the pin and ligatures nothing need be said, as the same condemnation which applies to the ordinary modes of deligation applies to that method.

The plan which it is the object of this paper to submit to the profession seems to the author to obviate the chief objections before advanced against the methods at present in use, and though he has as yet only had one opportunity of submitting it to the test of practice, still it was so strikingly successful in that instance that he is somewhat sanguine of its adaptability *to the majority* of cases. Short, thick pedicles may possibly not be amenable to the following plan, but experience can alone fully determine this.

The instrument here delineated (Fig. 1) is employed to grasp the pedicle firmly near its uterine end. The blades (*a*) are narrow, and, being male and female, they take a very firm hold; their apposition being retained by fixing the quadrant (*b*) with the screw. The cyst is next cut away by dividing with a knife the extreme distal end of the pedicle, and the stump is caught, by means of the forceps here shown (Fig. 2), at a short distance from the part grasped by the instrument already spoken of. The form of the blades and the quadrant and screw enables this instrument also to take and keep a very firm hold. By slowly turning the forceps while the first instrument is kept at rest, the stump is twisted off close to the edge of the instrument by which it is held. Hardly any tissue remains external to the fixing blades, and the amount of injury done is most trivial. Possibly it would be better to incise the peritoneal covering of the pedicle before applying these instruments. The stump may now be returned with safety into the cavity of the abdomen, and the closure of the wound can be at once accomplished.

FIG. 1.

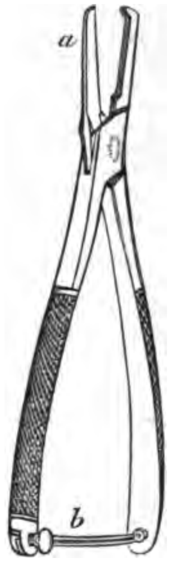
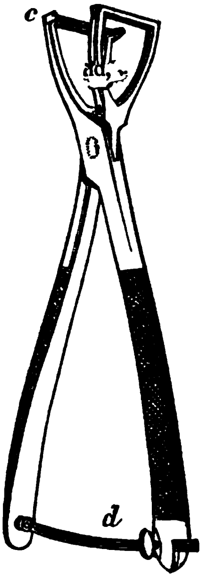


FIG. 2.



The case in which the writer employed this method was doubtless a very favorable one for such an experiment. Without entering into much detail, its leading features may be thus given:—

The patient was an unmarried healthy girl, nineteen years of age, who had suffered from an ovarian cyst of the right side for upwards of a year. The catamenia were scanty but regular* before admission into hospital. She had been once tapped, about two months before ovariotomy was performed. At the time of the operation she measured thirty-nine inches in circumference at the level of the umbilicus. The uterus was central, movable, and of normal size. Fluctuation was marked and widespread. The abdominal parietes were unusually thick, and not apparently adherent to the cyst.

Ovariotomy was performed, in the presence of many medical men and students, on the 26th December. The chloroform was admirably managed by the house surgeon, Mr. Reid. No sickness followed. It is unnecessary to repeat the various steps of the operation. No bloodvessel was tied or twisted. There were no adhesions. The parent cyst was large, and enclosed many secondary cysts having various contents more or less glue-like. The whole weighed 21½ lb., not calculating much fluid imbibed by clothes, &c. Not a drop escaped into the abdomen. The pedicle was of medium length, and was treated as before described. More time was taken up in the twisting than was probably necessary, from the desire not to rupture the pedicle prematurely; yet it is doubtless requisite for security that the torsion should be slowly performed. Not a drop of blood escaped, and the stump was replaced into the abdomen, and that cavity closed in the usual way, but not so thoroughly as in future cases would be accomplished, simply because of the fear that, after reaction was established, it might have to be reopened to command bleeding.

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* A case operated on by the writer a few months ago, in which, with large cysts in both ovaries, the catamenia had remained quite regular up to the time of the operation, tends to diminish the value of such an occurrence in a diagnostic point of view.

Not a bad symptom followed. The day after the operation a too tight strip of plaster caused the patient some pain, which was easily allayed by removing the cause, and she had also, as is usual, some annoyance from flatulence; but, beyond this, she so rapidly recovered that, if it had not been for the dread of running unnecessary risk, she might have been sitting up in a week. She was allowed, however, to sit up on the eleventh day; and was altogether beyond restriction as to food &c. in a fortnight. The exceeding thickness of the abdominal parietes and the paucity of sutures employed caused the superficial portion of the wound to remain open longer than would otherwise occur. The exceedingly little general disturbance which followed, together with the perfect result, was not more gratifying than remarkable to all who watched the progress of the case. She was quite recovered about the time the clamp is found to separate in most cases.

The perfect arrest of all bleeding by the torsion was very striking, and, as it occurred in a strong healthy patient, it was a fair test of its power. Hardly a trace of injured tissue was left; immediate replacement was accomplished; the uterus and its appendages were restored to their normal position; and the abdominal cavity was effectually, quickly, and completely closed. In short, every operative requirement as regards the pedicle was fulfilled.

It is a question for further observation how far the simple grasp of the first instrument, if continued for a short time, might suffice to close the vessels of the pedicle without the torsion. If that succeeded, it could be applied below the peritoneal covering of the stump, and all tissue beyond it cut cleanly away.

In conclusion it may be stated that the idea carried out in the use of these instruments arose from seeing the apparatus employed by veterinary surgeons for castrating the horse lying in the shop of our most able hospital mechanist, Mr. Hilliard, and the strong conviction he expressed that some such appliance would be found an efficient hæmostatic agent in ovariotomy. The instruments before delineated were made by him for the author, as also a light and most ingenious clamp (Fig. 3, *e*), which is firmly closed by means of forceps (*g*), and quickly disengaged from its blades (*f*) when required, as the jaws of the forceps only lightly catch in the indentations or grooves on the sides of the clamp.

It may also be added that Nélaton's forcep's for grasping the sac (Fig. 4) have proved in the writer's hands most useful. The flat broad blades (*h*) with teeth take a good hold, and yet do not tear, and the catch (*i*) between the handles keep them solidly in place.

Fig. 3.

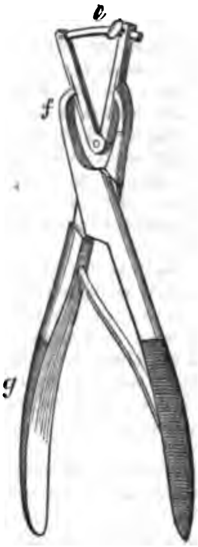
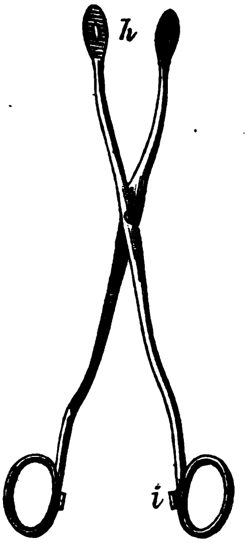


Fig. 4.



If ovariotomy were an operation of every-day occurrence, the writer would not have published these remarks till he had tested his suggestion by a number of cases; but as, at best, weeks or months may pass before he can further employ the method described, and the matter is an important one, he judged it best to submit the plan at once to the profession.

Woodside-crescent, Glasgow, January, 1871.

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HERNIA IN COUNTRY PRACTICE.

By William Morris, M.R.C.S.

Case 1. *Strangulated Femoral Hernia; opening of sac; recovery.*—Mary H.——, aged fifty six, housewife, residing at River, applied to me on March 8th, 1869. She stated that for about twelve years she had occasionally had a swelling in the right groin, which had hitherto been reducible. On March 3rd she commenced to suffer from an attack of bronchitis, and on the 6th, during a fit of coughing, the tumour came down and could not be returned; she was sick frequently, and between this date and the evening of the 8th some of the vomited matter was stercoraceous. Opium was administered and ice applied, and the taxis in the hot bath was employed fruitlessly; but consent to an operation was refused.

March 9th.—With the assistance of Dr. Turner, I operated by making a vertical incision along the inner side of the tumour, laid bare the sac, and divided Gimbernat's ligament, and again used taxis, but to no purpose. The sac was then opened, and found to contain a coil of light-claret-colored intestine, which was returned after dividing a stricture at the neck of the sac. The wound was dressed in the usual way.

On the 12th the bowels acted, and a large quantity of solid fæces was passed. In a fortnight from this time the wound had nearly healed, but there had been and still was some discharge from it. She still suffered from bronchitis, but on April 3rd was able to leave her bed and get about her room. She is now quite well.

CASE 2. *Strangulated Inguinal Hernia; opening of the sac; recovery.*—Sarah C.——, aged sixty-three, housewife, living at Petworth, had for several years a small irreducible hernia in left inguinal region. Towards the evening of Feb. 5th 1870, she was suddenly seized with severe pain about the swelling, and vomiting. She applied at once for relief. The tumour, which was the size of a walnut, was very tense, but gave decided impulse on coughing. Taxis was at once employed, but failing, opium and ice were resorted to. Next morning, as the hernia still resisted taxis, and the vomited matter was stercoraceous, an operation was suggested, but not acceded to till the evening, when it was performed by me, assisted by Dr. Turner and Mr. H. Morris. The sac was opened, and a small knuckle of ileum, nowhere highly congested except around the portion constricted by the neck of the sac, was returned.

For a fortnight afterwards there was considerable discharge of pus from the wound, but by the beginning of the fifth week from the day of operation a truss was worn, and the patient able to get about. She is still living and well.

CASE 3. *Strangulated Femoral Hernia; sac, containing a large piece of omentum enclosing a coil of ileum, opened; sloughing of the bowel and apposed surface of omentum, with adhesions between the two; omentum removed; rupture of the bowel within thirty-six hours after operation; recovery.*—Mrs. R——, residing at Lavington, had had for eight years an irreducible femoral hernia, forming a tumour in the left groin as large as a hen's egg, and which she had allowed to go unnoticed till the morning of March 9th, 1870, when she awoke with pain in the left groin, and a feeling of sickness followed by actual vomiting. Between this date and March 11th she vomited three or four times, and towards night the vomited matter became stercoraceous. There was considerable pain about the tumour and tenderness at the lower part of the abdomen. Opium was administered and taxis employed before and after the application of ice. An operation was then proposed, but declined.

On March 12th Mr. Henry Morris saw the patient with me. She was then tolerably free from pain except along the lower margin of the ribs; the abdomen was somewhat distended and tender; her bowels had not acted since the attack commenced; her tongue was slightly furred; pulse 84, regular and full. An operation was again urged upon the patient and her friends, but positively refused at that time.

Early in the morning of the 13th, on visiting her with Dr. Turner and Mr. H. Morris, we found she had passed a quiet night and had not vomited, but was suffering pain about the swelling, the skin over which was of a deep-red color, and there was much tympanites and tenderness of the abdomen. Operation was now permitted, and performed by Mr. H. Morris. An incision, rather more than three inches in length, was made through the skin and subjacent structures along the axis of the tumour, and the sac reached. This was laid open and found to contain a piece of omentum, spread out so as itself to form a complete sac of the same thickness everywhere except at the inner and lower front part, where it was so thin as to allow a coil of highly congested bowel which it contained to be seen through it. The neck of the sac having been freed from all external adhesions and constrictions, the sac of omentum was laid open from end to end, and the "bend" of the contained ileum was found adherent to the fundus of the omental sac by bands of soft lymph. On separating these, an ashy-grey, sloughy, and uneven-looking patch, about the size of a small almond, was seen at this part of the bowel, which appeared almost perforated; and the inner surface of the omental sac opposite to this part of the ileum was also rough and sloughy-looking. The omentum was now drawn a little further out of the abdomen and tied by one firmly applied ligature, the ends of which and the tied piece of omentum were cut away, and the pedicle returned just within the abdominal cavity. The intestine was left with its sloughy portion protruding without the crural ring. Two sutures, one at the upper and one at the lower part of the wound, were inserted, and the whole covered with a warm soft napkin. Between the time of operation and the evening she had vomited four times, the vomited matters being once stercoraceous; her pulse was 86 and regular: there was inability to void urine, so a catheter was passed, and a pint drawn off.

In the evening of March 14th, about thirty-six hours after the operation, a loud report, as if wind escaping suddenly from a distentended bag, was heard, and, on examining the wound, fæcal matter was seen escaping from the ruptured gut, which remained still *in situ*.

March 17th.—Pulse 100; tongue somewhat dry; abdomen generally distended and the seat of much pain at intervals; the discharge, which was abundant from the wound till yesterday, is now very scanty, and she has been sick once or twice during the morning; there is considerable redness of the skin around the wound. Both sutures removed, and a warm bread poultice applied to the part; opium given by the mouth every three or four hours, and a little brandy and light farinaceous diet taken regularly.

April 3rd.—All evacuations from intestines pass through the wound, the skin around which is eczematous. There are two small sinuses, one large enough to admit a good-sized probe, through which fine coils of greenish, non-offensive matter pass.

17th.—To-day fæces have passed by the rectum, for the first time since operation; there is still some slight discharge from the sinus in the groin. No aperient medicine has been given throughout.

24th.—No discharge from groin; all is healed except a sinus of hair-breadth fineness. She now gets up and about her room.

27th.—Wound entirely healed.

She is still well, and walks occasionally eight or ten miles a day.

CASE 4.—*Direct Inguinal Hernia; sac opened; omentum ligatured and removed; recovery.*—Ann M——, aged sixty-seven, housewife, living at Teglease, was hoeing in her garden on April 20th, 1870, when she felt a sudden impulse and pain in the left groin, and, on putting her hand to the part, discovered a swelling as large as a hen's egg. Later in the day she vomited some clear fluid.

April 21st.—Sickness ceased, but pain continued, and she sought advice. On examination, the tumour was found to be situated in the left inguinal region, inclining towards the labium, but leaving the abdomen nearer the median line than the internal abdominal ring; it was very hard, but gave no impulse on coughing.

24th.—Opium and taxis failed to reduce the hernia. On the morning of the 24th, although there was no sickness or constitutional disturbance, yet, as there was a good deal of pain and much redness of skin about the tumour, an operation was decided upon. This was performed by Mr. Henry Morris, with the assistance of Dr. Turner and myself. The sac was opened and found to contain omentum firmly compressed and strictured at the neck of the sac. One ligature was placed around the omentum, and the protruded part, with the ends of the ligature, cut off, and the pedicle left in the opening; the wound was brought together by sutures, lint soaked in carbolised water laid upon it, and a spica bandage applied.

29th.—Wound nearly healed; a little pus escaped from the lower end.

May 2nd.—Wound quite healed. Bowels acted freely for the first time. Is now quite well.

CASE 5.—*Strangulated Femoral Hernia; sac opened; death from exhaustion from diarrhœa.*—Maria L——, aged thirty-nine, residing at Graffham, a married woman and mother of twelve children, had been ruptured fifteen years. The rupture was brought on by lifting a heavy kettle two weeks after a confinement, and was always reducible till Oct. 26th, 1870, when, on rising, she found she could not return the hernia. For six weeks previously she had been nursing her husband and eight children, ill with typhoid fever; and it was while visiting them on Oct. 27th, and without an application on the woman's part, that I found her suffering from strangulated femoral hernia. The tumour was the size of an orange; there was general tenderness of abdomen, and sickness. Taxis failed and opium was given without effect.

Oct. 28th.—Early this morning she was removed to the Petworth Cottage Hospital, where, with Mr. Shout's assistance, I cut down upon the tumour, divided the edge of the falciform process, and opened the sac, in which was a coil of deeply congested ileum, which in one spot, the size of a fourpenny-piece, was ashy grey in color, very thin, and almost perforated. This was left in the opening after the neck of the sac and the free edge of Gimbernat's ligament had been divided; the wound was partly closed by sutures, and warm dressing applied. Opium was given by the mouth, and ordered to be repeated.—8.30 P.M.: She has several times vomited a little clear non-offensive fluid, but is quite free from pain. Ordered twenty drops of tincture of opium every four hours.

29th.—8.30 A.M.: Has been free from pain all night, but has once or twice felt sick. Not much tenderness of abdomen. Her bowels acted at 7 A.M., and again at 8.15.—8 P.M.: Pulse 130. Has been slightly sick. Her bowels have acted eight times since this morning's visit.

30th.—8.30 A.M.: No sickness, but the bowels acted three times during the night.—3 P.M.: Abdomen distended. Has brought up a little fluid. Skin covered with cold perspiration.—8 P.M.: Bowels still relaxed. Patient is much weaker.

31st.—8 A.M.: Sickness and diarrhœa continued through the night; she is now sinking rapidly.—At 10 A.M. she died. No post-mortem examination was made.

Remarks: by HENRY MORRIS, M.A. M.B. Lond.—The above cases, three of which I had the opportunity of seeing two or three times each, present several points of interest. In the first place, they show that there is no great amount of danger essentially connected with opening the sac of a hernia; for in all of them it was done, with a fatal result in one only, and in that case death was otherwise explicable than by peritonitis. Case 3 even shows the advisability of the measure; for, though the contents of the sac, and the exact position in it of the intestinal portion, had been rightly diagnosed before commencing to operate, the state of the bowel could not be foreseen; and had reduction been effected without exposing it death must have been inevitable from rupture of the gut within the abdomen. Next, it is clearly proved that no ill consequence need necessarily arise from returning the pedicle of omentum with a short cut ligature: neither peritonitis set up by the ligature itself, nor gangrene of the portion of omentum below the ligature, is an essential result. Possibly the ligature, being silk, was absorbed, and the strangulation caused by it, though sufficient to check hæmorrhage, may yet not have been so complete as to prevent some nutrient material reaching the tied portion, but rather acted as a stricture does in an irreducible hernia; or, again, the pedicle may have become adherent to the structures against which it lay. Happily no opportunity was given to examine this point. In Case 4 the tied omentum was not returned, and the ligature came away entire at the end of a fortnight. In Case 3 the question arose, at the time of the operation, whether it was preferable to make an artificial anus at once, or to leave the bowel *in situ* without opening it; and though there was some slight risk of retraction by vomiting or otherwise, yet the treatment adopted seemed the better of the two. In Case 4 an operation might possibly, as it turned out, have been dispensed with; but as the diagnosis as to the contents of the sac was not quite clear, with the experience of Case 3 before us, it seemed to us the safer plan to operate. One is, however, led to think that could omental always be distinguished from intestinal herniæ the number of operations might be greatly diminished. In Case 5 the patient was previously greatly debilitated, and, from the nature of the diarrhœa which followed the operation, it is highly probable that she was already the subject of insidious typhoid; that the accumulation of fluid secretion within the bowel helped to produce its descent during the absence of the truss in the night; and that as soon as the stricture was relieved the intestinal contents were discharged per anum. At any rate exhaustion from its effects, rather than the operation or the hernia, seems to have been the cause of death.

Petworth, December. 1870.

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NOTES OF A CASE OF

SUDDEN DEATH AFTER TAKING LARGE QUANTITIES OF CHLORAL HYDRATE.

By HUGH NORRIS, L.R.C.P. Ed.

BELIEVING that the following case possesses sufficient intrinsic interest for the medical public, I do not offer any apology for communicating it through the columns of THE LANCET. I feel the less hesitation in doing so as I am not aware that a death occurring immediately after taking an inordinate quantity of chloral hydrate has yet been recorded.

J. M——, female, aged forty-six, married, in comfortable circumstances, and whose constitution presented unmistakable evidence that she was approaching the critical period of life, had for the past seven years been occasionally addicted to excessive indulgence in stimulating liquors. In 1868 she received several mental shocks, and about the same time she also severely taxed her nervous system by too assiduously nursing a sick mother. It was subsequent to this that she first indulged to any extent in the above-named vice.

I first saw her in November, 1869, on the occasion of her suffering a severe attack of hysteria, complicated with spinal irritation; but I did not know till some months afterwards that she was the victim of dipsomania. When opposed in her desire for stimulants she became extremely violent, and, being a powerful woman, no inmate of the house escaped her assaults, or came off scathless in her struggles to gratify her desires. No treatment, moral or medical, appeared of any avail. The various diffusible stimulants and anti-spasmodics were in vain tried for her hysterical symptoms, and no sedative produced effect but the chloral hydrate. Of this a nightly dose soothed her more or less, and for months previous to her decease I was obliged to administer this drug almost every evening in order to procure her any sleep whatever. I cannot say exactly how much of the drug she took, but I can state that between October 18th, 1870, and the day of her decease, she had forty-five single chloral draughts *from me*, none, however, exceeding forty grains, and some only from twenty to thirty grains. If (as on several occasions I attempted to do) I prescribed another sedative, as bromide of potassium, or henbane, with a view to break her of the habit of taking chloral, she was down on me at once. In fact, nothing calmed her restlessness or soothed her neuralgia but chloral or stimulants; and one or the other she was resolved to have. *I* preferred the former, as a very small indulgence in fermented liquors was sufficient to "set her going"; and, when she once commenced, her house was like Pandemonium. The chloral did not appear in any way to injure her health, and it certainly added to her comfort; and by its administration I hoped to control her passion for stimulating drinks.

After the 16th of December I had altogether ceased my supply of the chloral draughts until the 3rd of January, when I was hurriedly called to see her late at night, as she had taken a large quantity of a concentrated preparation of sarsaparilla, and was supposed to be dying. I found her in a fit of hysteria, and learned that she had swallowed (I presume on the chance of its containing some stimulant) fully ten ounces of Townsend's extract of sarsaparilla. I saw she was not likely to die; and at her own request she took a draught containing, as I afterwards learnt, 36 gr. of chloral, which she had obtained from a neighboring chemist. I gave her a dose of this drug each night but one that she continued to live, usually ½ dr. a day, except that on the 8th she had 20 gr. in the morning and 40 gr. at night. On the 9th, 10 gr. in the morning and 30 gr. at night. On the 10th, 10 gr. in the day and 40 gr. at night; and on the 11th, 40 gr. at night.

On the 12th, when I returned from my morning round, I found to my astonishment that she had died almost suddenly at noon the same day. On making minute inquiry as to the circumstances attending her death, I was appalled to learn that she had been taking from the druggist above mentioned an extra draught (containing at first 30 gr., and latterly 36 gr. of chloral) each night for a month past, *in addition to those I had given her;* also that during the night of the 10th she had taken no less than *three* draughts, each containing 36 gr., in *addition* to mine of 40 gr., and 10 gr. in the morning; and that during the night of the 11th she had taken *two* such draughts in *addition* to mine of 40 gr.

I will here endeavor to state more lucidly the amount she had taken since the 3rd of January, and then quote her husband's evidence as to her condition during the last two days of her life. On the 3rd of January, after 10 oz. of Townsend's sarsaparilla, she had 36 gr. chloral; on the 4th, 36 gr.[*]; 5th, 30 gr.; 5th, 36 gr.[*]; 6th, 30 gr.; 6th, 36 gr.[*]; 7th, 30 gr.; 7th, 36 gr.[*]; 8th, 20 gr.; 8th, 40 gr.; 8th, 36 gr.[*]; 9th, 10 gr.; 9th, 30 gr.; 9th 36 gr.[*]; 10th, 10 gr.; 10th, 40 gr.; 10th, 108 gr.[*]; 11th, 40 gr.; 11th, 72 gr.[*] Thus making a total of 712 gr. within 9 days, the last 260 gr. of which had been taken within 35 hours.

After the 3rd of January I saw her almost daily; and although she suffered much from sickness (a prominent symptom for some years past) I found her pretty nearly in her usual condition, save that on the 9th she complained much of neuralgia in her hands and wrists.[†]

I called at her house on the 11th, the evening preceding her decease, but I did not see her, as she was dressing to go out to tea with a friend; and I was told she had been better the whole day. She had from me a 40 gr. chloral draught on her return that evening; and the next thing I heard of her was that, as above stated, she had died at 12 o'clock the following day.

I will now relate the occurrences of the previous two days, as collected from her husband's statement at the inquest:—

"On the 9th she neither ate nor drank, and, as she complained of pains in her stomach, she took a draught (containing 10 gr. of chloral). On the 10th she was very much excited, and tore one of the blankets in pieces by kicking. She declined to take any medicine during that day. On going to bed, she said 'I *must* have something to put me to sleep.' She had one of the (40 gr.) draughts. About midnight she awoke and insisted on having another draught. On being refused, she became very excited, and lay on the ground writhing. During the night, however, by dint of the most earnest entreaties, she managed to obtain three other draughts, each containing 36 grs. of chloral. After the second of these she became very sick, and obtained the third draught, on the pretext that, as she had thrown up the second, it could not have benefited her. (She had on a late occasion, when taking two a night, exclaimed, 'Oh, if you only knew what good they do me, you would give me bottlesful of them.') On this night she slept calmly for an hour or two after each draught, but at daylight she was observed to talk in her sleep, a symptom never before noticed. This soon passed off, and she slept quietly. When she awoke she said she was better, and she *appeared better than she had been for a long time*; she had beef-tea and toast for breakfast, and ate more than she had done for several days." (Her husband was absent on business nearly all day on the 11th). On his return he found that she had gone to have tea with a friend, having previously drunk half a glass of beer. Between 10 and 11 P.M. she had one of the forty-grain draughts; and between 1 A.M. and 2 A.M. a second, containing thirty-six grains. About 3 A.M. she complained much of feeling cold; but went to sleep, and awoke about 5 A.M., when she talked cheerfully. After a time she exclaimed, "I feel that pain at my stomach again." She appeared in great agony, but got up, went down stairs, took some pepper and hot water, which gave immediate relief. She returned to bed, got warm, and fell asleep. About daylight she awoke, and asked for another draught, which, after some opposition, was given her. She soon went to sleep, but awoke between 10 A.M. and 11 A.M., went below stairs without dressing, and took her breakfast, consisting of a cup of tea and two slices of bread-and-butter. She then returned to bed, and gave her husband instructions to execute some commission for her as he was going into the town. On his return, after about an hour's absence, he found her sick upstairs, and begging for brandy to stop her vomiting. As aforetime stimulants had failed to relieve sickness, he refused. He left her (in bed) for about five minutes, and on his return she was lying dead on the floor, with a vessel by her side, in which she had evidently been vomiting.

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[*] The asterisks mark the draughts supplied by the druggist, *of which I had no knowledge until after the patient's decease.*

[†] On this day the patient had suffered a considerable loss of blood from the menstrual discharge—a fact I only learnt subsequently to her death.

In my absence, my assistant, Mr. Edwards, saw her immediately, and found her warm but quite dead, the pupils being dilated. Four hours afterwards I saw her myself. The body was still warm, as were the sides of the face and neck, notwithstanding the coldness of the weather. All the muscles were quite flaccid, and the joints perfectly limp. The pupils were fully dilated.

At an autopsy made a hundred hours after death, there was not the slightest odor of decomposition, except in the air displaced from the lungs on moving the body. The following appearances were observed:—There were scarcely any puncta sanguinea in the white portion of the brain, which was very fresh and firm, and little if any fluid in the ventricles. The liver was much enlarged, slightly congested, and somewhat leathery. The kidneys were large, but not apparently diseased. The heart-tissue was somewhat pallid; the ventricles were empty; the auricles partially distended by dark, semi-coagulated blood. The stomach, which was not opened, contained two or three ounces of fluid matter. The body was well nourished; and all the remaining organs appeared quite healthy, but very firm, and not decomposed in the slightest degree. There was no perceptible odor of chloroform.

A hundred and thirty hours after death the stomach and contents, together with portions of the lung, liver, heart, kidney, and spleen, were submitted to Mr. Stoddart, of Bristol, for analysis; and I herewith append his report.

"The first thing that struck me was the very extraordinary way in which the several portions were preserved. Even now, although more than a week has elapsed since death, yet not the lightest sign of decomposition has taken place, nor any unpleasant odor. This doubtless is the effect of chloroform in the tissues. Part of the gruel-like contents of the stomach was treated with caustic soda, and distilled at 160° Fahr., and the vapor passed through a red hot glass tube. Chlorine and hydrochloric acid were produced, which reddened litmus paper. Iodide of potassium and starch were colored blue, and then decolorised. Solution of nitrate of silver threw down the chloride.

"Another portion was placed in a small alembic, with a mixture of potash and soda, and distilled at 160° Fahr. by means of a water-bath, and the head of the exit tube immersed in pure distilled water contained in a small Clark's receiver. In a few minutes small drops of chloroform were slowly deposited at the bottom of the water. These were pure chloroform. The smell of chloroform was perceptible in the alembic the day after. I tested for all the poisons that were probable, but without any success.

"There seems, therefore, no doubt that an excess of chloral must have been taken, and the resultant chloroform was so disseminated through the tissues that they were completely preserved. I should mention that the contents of the stomach had no perceptible smell of chloroform till after the addition of an alkali."

In a subsequent letter, Mr. Stoddart adds:—"I found the most (chloroform) in the liver and contents of the stomach, but could not separate any from the other parts; nor could I from the heart, which seemed to have lost any blood contained in it."

I regret that I did not send any blood or brain for examination.

On reviewing this case, I think it deeply interesting in several particulars; and, without enlarging on my own views, for the present at least, I give it to the profession "pure and simple," contenting myself with mentioning the points which more especially attracted my attention.

1st. The large amount of chloral which this patient had taken in the aggregate, with apparent benefit.

2nd. The excessive doses that were administered towards the end of life, without inducing any amount of prolonged sleep.

3rd. The mode of death, which bears abundant testimony to the acumen of that profound reasoner, Dr. B. W. Richardson, who has stated that, in such cases, dangerous decomposition of the blood may occur before coma is produced, and that the repetition of considerable doses of chloral at short intervals would be followed by the formation of formiate of soda in the blood, by which its coagulating power would be much diminished; and that in such cases the symptoms would be similar to those induced by loss of blood.*

4th. The post-mortem appearances, especially the firmness of even the more friable tissues, and the marvellous state of preservation in which the various organs were found so long after death.

I fear I have trespassed far beyond the usual limits allotted to one paper in the pages of THE LANCET; but as I feel the case to be an important one, and that it is mainly by placing such on record minutely and truthfully that we country doctors can materially advance the grand cause of medicine, I hope I may be pardoned for having entered into what some persons may imagine tedious detail, while relating a plain statement of facts.

South Petherton, Somerset, January, 1870.

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* Vide Medical Journal, April, 1870.

ON THE

ACTION OF LIGHT IN SMALL-POX.

By J. H. Waters, M.B., M.C., &c.

It has long been known that chemical changes can be effected by light, both of combination and of decomposition, especially the latter, and that substances in great numbers are found more or less susceptible to its influence. Many instances might be given of this. Chlorine and hydrogen at ordinary temperatures will not combine except when acted upon by light. In organic chemistry examples in plenty abound, as the salts of silver, &c. It is generally the luminous parts of a ray of light that effect this. In them lie the chief chemical action, and this exists even when the light is feeble, although no doubt for every kind of ray a substance might be found which, if circumstances were favorable, would be acted upon by it. This power has received the name of actinism, and is distinguishable from the heat-giving rays by being refrangible to the highest degree.

Animal and vegetable nature are peculiarly susceptible to the influence of light, their color being in a great measure dependent upon its action. If a plant is allowed to grow for any length of time in the dark the leaves and stalks are destitute of color, and it bears no seed. An animal living in the dark loses its color. Man especially is most sensitive to light, his skin becoming of a peculiar waxy hue when he is deprived of it; and when constantly exposed to its effects his face and hands get deeply colored. This is in persons with their ordinary health.

The sensibility of the skin varies greatly in different parts of the body. Weber, to prove this, applied the points of a pair of compasses to it. In some places the two points can be felt when only a few lines apart; in others they must be separated to a considerable extent to be distinguished; and it is those parts exposed constantly to the action of light that are most sensitive. This would show some connexion between nerve development and light, which as yet is not understood. Disease modifies this sensibility considerably by its action. The skin may be rendered more highly sensitive, or less so; or sensation may be altered and perverted. This, although well known to be due to some change in the nervous system, is far from being understood.

Those diseases that attack the skin, or rather that are eliminated by it, and which increase its susceptibility to light, are more dangerous when exposed to its influence. Small-pox, in particular, is more severe when light is allowed thoroughly to pervade the patient's sick room. John of Gaddesden first noticed this, and proposed its exclusion from those chambers where patients suffering from this disease lay; since his time many physicians have acted upon his idea, with more or less success as they have efficiently carried it out. If white light is entirely excluded from the patient, there is no doubt the disease is less severe; by white light I mean daylight. The room being so darkened that not even a single ray can enter it, and a candle being used instead, the effect is to arrest the disease at the papular or vesicular stage; it never becomes purulent, and the skin between the vesicles is never inflamed or swollen; the liquor sanguinis is prevented from becoming pus; we never see the large scabs of matter covering the face; there is no intense pain; even the itching is trifling; and the smell, so annoying to all concerned, is, if not altogether removed, so diminished as to be easily borne. The earlier in the disease the room is darkened, the more certain will the effects I have named follow; but if during the stages of primary fever or eruption the white rays of light are admitted only for a short time, it is sufficient to cause great mischief, and to nullify to an immense extent all that has been before done.

Another advantage derived from this mode of treatment is that we are able to administer medicines which it would be impossible to use without it—those that act upon the skin and assist it to eliminate its poisons the inflammatory action being less severe, we run no danger by stimulating its excretory powers in moderation.

The treatment I follow in addition to the darkening of the room and quiet in bed is to give the patient a farinaceous diet, with beef-tea and fish, ripe fruits and milk, lemonade, soda-water, barley-water, and demulcent drinks. The room to be well ventilated; this can be effected by the window remaining open under the covering that excludes the light. Tepid sponging, with frequent changes of linen. Purgatives should be given very cautiously; none but the mildest are admissable, and it is better to regulate the bowels with fruits than to use any at all; if a laxative is necessary, mild enemata are the best. From the commencement of the fever to the acumination of the pock, arsenic (Fowler's solution) with iodine in small doses, the iodide of potassium, and solution of the acetate of ammonia, in a mixture, a dose every four to six hours, is in most cases well borne and does good; after this, arsenic (the solution of the arsenite of soda) with the syrup of the phosphate of iron will act better, and be a restorative tonic. Stimulants may be given if necessary; and, if sleeplessness is complained of, chloral hydrate, with or without opium or henbane, is best.

I find, by reference to my notes of a great number of cases which have been under this treatment, that when the patient has been seen early—that is, before the appearance of the eruption,—the general history is as follows:—

First, second, and third days.—Patient is suffering from fever, and from the well-known symptoms of small-pox. Has been complaining some days. The room to be darkened; tepid sponging, &c., with the first arsenical mixture to be given; quiet in bed enjoined; milk diet, &c.

Fourth day.—Eruption is beginning to show itself; less fever, &c., but itching of the skin has commenced. No powder to be used, as this I find does more harm than good; it fills up the pores of the skin, preventing perspiration, either insensible or otherwise. Cold cream, the lime liniment, or sponging to be used instead. The same mixture, &c., to be repeated.

Fifth day.—The eruption well out, with slightly inflamed base; less fever. The same treatment continued.

Sixth, seventh, and eight days of the disease (third, fourth, and fifth of the eruption).—The eruption progresses in the ordinary manner, but the fever has nearly subsided, except in the more severe forms of the disease. Appetite returning. Same treatment continued.

Eighth, ninth, and tenth days of the disease (sixth, seventh, and eighth of the eruption).—The vesicles, instead of being converted into pustules, get less and less, their contents being absorbed, or they dry up into a brown scab, which comes away in the ordinary manner. There is no secondary fever. The patient feels quite well, eats well, and is in fact free from the disease.

This is the ordinary progress of the disease under the treatment I have mentioned; the exceptions are such as only prove the rule.

I was attending four children suffering from the small-pox. They were so well on the fifth day of the eruption that they were allowed to play about the room. The nurse having to go away for a short time, they got to the window, and pulled down a carpet which had been used to exclude the light. The window being open for ventilation, the two eldest put their heads out, and thus nullified the precautions before taken. When I saw them, a few hours afterwards, they were feverish, and the eruption looked very angry. These two children got well, but were marked; the other two were not.

A lady who was staying with some friends, having been obliged to quit Paris just before the siege of that city, brought the small-pox with her. The eruption was coming out when I first saw her. Went on well till the fourth day, so well that she wished to read. To admit sufficient light for the purpose, the nurse pulled up the corner of the green baize. After the lapse of a few hours tingling heat and pain, with fever, came on; and, this being a confluent case, she became very ill; the secondary fever was very severe. She recovered, but was marked.

The son of a shoemaker was attacked by the disease. I saw him on the first day of the eruption. The necessary precautions for darkening the room were not carried out properly in my absence. When I was away, light was admitted. This was a confluent case, also, in the face. He never did well, and died on the eleventh day. The other three children all had it. All did well, and were not marked. The treatment was followed out with them strictly.

Jermyn-street, January, 1871.

ON THE

ANTIPYRETIC TREATMENT OF TYPHOID FEVER AT THE SEAT OF WAR.*

By PROFESSOR BINZ, of Bonn.

THE bloody days from the 14th to the 18th of August before Metz had afforded to our field lazaretto (No. 2 of the 8th Army Corps) an ample share of danger and work. I was myself established with part of it in the church of Gorze until the 5th of September, when we were replaced by the permanent lazaretto, in order to follow the army in its movements round Metz, until the capitulation relieved us from camping in the bivouacs and villages of the neighborhood.

We then accompanied the 8th Army Corps in its westward movement against the newly-formed French army of the North; and, on our arrival near Compiègne, we were ordered to establish ourselves in this place, and were quartered in the Petites Ecuries—a dependence of the Imperial chateau. We found on our arrival about 200 medical patients, mostly grave and mild cases of typhoid fever belonging to Manteuffel's army.

It was rather a complicated business to transform the rooms assigned to us into a proper hospital. All the silk beds and curtains, the magnificent engravings and elegant furniture, could not make up to us for the want of the many articles necessary for hospital work. The town, however, assisted most readily, and, with the help of our experience of 1866, we succeeded in a few days in giving the place a hospital-like appearance.

You can imagine that I availed myself of the opportunities of my position as chief of the lazaretto to direct my whole attention to the antipyretic treatment of our numerous typhoid patients. I had not expected to be able so soon to test in practice a point which I had examined theoretically a short time before. (Virchow's *Archiv*, vol. li., p. 28.) As the Prussian field lazarettos have been provided, for some years past, with clinical thermometers, and as the voluntary aid societies had supplied others, in addition to those I had brought with me, I was enabled to make all the necessary thermometrical observations. Amongst the cases sent to us from the end of November up to this time, there were sixty cases of grave typhoid fever. The temperature was always taken in the anus, as the process by the axilla would have occupied too much time. According to frequent and careful examinations, a good and sensitive thermometer requires to remain fifteen minutes in the axilla, and only five minutes in the anus; and the measurement in the axilla offers, besides, other chances of error.

I could not hesitate as to the selection of the plan of treatment—whether the old stimulating (English) method; or the German expectant, as introduced, especially by the schools of Vienna and Prague, in reaction against the inundation with medicines; or the rational modern plan, which is the result of the use of the thermometer according to Traube's, Bärensprung's, and Wunderlich's teachings. There can be no doubt that the majority of deaths from typhoid fever are caused by the continued high temperature. This danger we can meet in two ways: first, by the more rapid abstraction of the heat already produced; secondly, by checking the production of heat. The former intention is carried out by the frequent use of moderately cold baths; the latter by the internal administration of antipyretic remedies, amongst which quinine occupies the first rank.

You are acquiated with the development of this method from Currie up to the present time, when especially Brand and Liebermeister in Germany have given it a scientific formula. As soon as one of my patients had in the morning above 101° Fahr., and in the evening above 103° Fahr., he was placed during fifteen to twenty minutes in a bath of about 77° Fahr., and every second day he received either in the morning or in the evening fifteen, and in severe cases twenty-three, grains of quinine dissolved in hydrochloric acid and water.

If I communicate to you the statistical results of this method, I do not think for one moment to tell you anything new; I wish only to corroborate and to propagate a striking truth which is, unfortunately, not yet generally acknowledged. If one has at once to deal with sixty serious cases of typhoid fever in otherwise strong young men, the conditions are too evident to allow deception. Of these sixty cases, I have lost to this time one case from peritonitis, two from intestinal hæmorrhage, and a fourth will probably become fatal through profuse diarrhœa, though the typhoid fever may be said to have passed. If I consider this case as fatal, the mortality is 6·6 per cent. As far as I remember, the mortality in the German clinical hospitals before the introduction of the antipyretic treatment varied from 12 to 25 per cent., but has been reduced by this method to a similar figure as the one obtained by us. To avoid misunderstanding, I repeat that the sixty cases in question belonged all to the *graver type*, while the others (about 130) were registered as mild typhoid fever. We may from this experience, at all events, draw the inference that, under a careful but persistent antipyretic treatment of typhoid fever, few patients, if any, will die of exhaustion in consequence of the febrile temperature continuing for weeks, and the causes of death will be restricted to less frequent complications.

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* Translation of a communication from Professor Binz to Dr. Hermann Weber, which the latter gentleman has been kind enough to forward us.

The moderately cold bath and the quinine exercise, besides their immediate effect on the febrile temperature, a very beneficial influence on two other conditions important in typhoid fever. The frequent baths promote cleanliness, so necessary on account of the diarrhœa, and through this greatly diminish the tendency to bedsores, which is further counteracted by the application of unguentum cerussæ, with camphor (twenty parts of the former to one part of the latter), to any patch of skin becoming red. The large doses of quinine administered in the evening have a calming effect, as well on the action of the "humours" as on that of the nervous system; and through this the nocturnal delirium, this horror of hospitals crowded with typhoid fever, was almost absent. If the effect of the cold bath on the "heated humours" had already diminished their tendency to irritate the brain, fifteen to twenty grains of quinine completed the calming influence; and thus we never required more than two night attendants in each of our typhoid wards, containing thirty patients. I ought to mention that all the patients received, after the bath a glass of sherry or Marsala. This was done with the intention (1) to increase the cooling effect of the bath by the internal antipyretic remedy (alcohol), though it exercises, given in this way, only a transitory influence; (2) to revive the action of the heart, which is generally rather depressed after the bath; (3) to counteract the sometimes excessive feeling of cold, which is principally caused by the contraction of the cutaneous capillaries. In connexion with this subject you will be glad to hear that two cases of Marsala supplied by the depôt of the English National Society at Remilly have been especially useful in the treatment of these cases.

January, 1871.

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ON A RAPID AND ACCURATE METHOD OF MILK ANALYSIS;

WITH SPECIAL REFERENCE TO THE EXAMINATION OF WOMAN'S MILK.

By John Muter, Ph.D.,

Director of the South London School of Chemistry and Pharmacy.

In entering upon this subject, it will not require any preliminary verbiage to show the necessity of keeping a watch on the composition of the nursing mother's milk. It has been often a matter of wonder to me that medical men did not avail themselves more frequently of the facilities offered by an analysis of the nurse's milk as an aid to the diagnosis of obscure cases of infantile disease, such as persistent diarrhœa, or continual loss of flesh without any visible cause. In such cases I have heard medical practitioners state their conviction that the milk was wrong; but when I asked them in what direction the fault existed, they were at a loss for a reply, and when I suggested an analysis they seemed inclined to think little of it, as they had never before dreamt of employing such an aid to diagnosis. On going more deeply into the subject, I found that several great impediments existed to the general employment of analysis, such as the quantity required, and the tedious and not over-accurate process of milk-examination still in use. It was therefore clear that, to render chemistry a useful aid to medical science in this matter, we ought to have a process which would combine smallness of sample, rapidity, and fair accuracy.

After many trials in various directions, it was determined to base the analysis on the real dietetic value of the milk, as represented by a determination of its solid residue, and the estimation of its nitrogenous and carbonaceous constituents. Experience derived from the use of Dr. Frankland's elegant system of water analysis by combustion *in vacuo* led ultimately to the application of a similar principle to milk. The process, when used for cow's milk, requires several modifications, in view of possible admixture with certain extraneous matters; but as it is only with woman's milk that I have to do in the present paper, these additional precautions need not now be mentioned.

The process is conducted as follows:—A small paper filter is prepared which will contain 10 grammes of oxide of copper. It is filled with the oxide and placed in a small funnel. The whole is then exposed for an hour in an air bath, so constructed as to draw a continuous current of air at 105° C. through and around the funnel. The funnel and its contents are then cooled in the desiccator, and weighed with great care, and the weight having been noted, *five drops* of the milk are cautiously let fall on the centre of the oxide, taking care that no milk spreads to the filter paper. The whole arrangement is then weighed, and the quantity of milk used found by difference. The funnel and contents are then replaced in the air bath, and exposed to a temperature gradually increasing from 50° to 105° during several hours. When the milk has been thus dried it is again weighed at intervals until it ceases to lose weight. This loss of course shows the percentage of water, and, consequently, of the total solids. The contents of the filter are now transferred to a warm glass mortar, mixed with more oxide of copper, and introduced into a combustion tube. The tube is charged in the usual way, but the front part is filled through three and a half inches of its length with a roll of copper gauze previously ignited in hydrogen. The end of the combustion tube is then drawn out before the blowpipe, and connected by an india-rubber and glycerine joint to the Sprengel air-pump. Heat is now applied to the front part of the tube, and, the air having been fully exhausted, the combustion is proceeded with, and the residual gases received into a tube over mercury. At the close of the combustion the gases are entirely transferred from the combustion to the receiving tube by the aid of the pump, and it only now remains to measure them in a manometric apparatus. For this purpose I employ the apparatus described by Mr. M'Leod in the Journal of the Chemical Society, and I find it to work most satisfactorily. The gases are first measured as a whole, and then separately absorbed by the usual reagents and measured after each absorption. We thus obtain the total volumes of carbon dioxide and nitrogen, evolved by the milk residue, and by a simple set of calculations we are enabled to deduce the actual weight of carbon and nitrogen contained in it, and consequently its exact value in nutriment. In one continued series of operations we therefore ascertain (1) the total solids, and (2) the amount of their flesh-forming and heat-producing constituents. When thus complete, the analysis would be expressed as follows:—

Example I.

Milk from E. S——, one month after confinement; child healthy.

Amount of milk taken, 0·24 grammes.
Total solids, 0·0264 = 11·00 per cent.
Organic nitrogen ... ·0014 = 0·5833 per cent.
„ carbon ... ·0167 = 6·5420 „

Therefore—

Water	89·00
Flesh-formers (casein)	3·71
Heat-producers (fat and sugar)	7·29
	100·00

This is a good specimen of well-balanced, healthy milk.

Example II.

A. B——; time after confinement not mentioned; child ailing; diarrhœa.

Water	87·69
Flesh-formers (casein)	0·91
Heat-producers (fat, &c.)	11.40
	100·00

A milk so poor in nitrogen as to be worthless for the due nourishment of the infant, while there is immense excess of sugar and fat.

Having thus laid this plan of analysis before the profession, it is for them to consider the clinical value of such examinations. It is not for me, as a chemist, to point out this further than to ask whether, by proper investigation into the properties of its mother's milk, the sick child might not often be saved by applying to her the remedies and, above all, the course of diet shadowed out by such analysis, or by at once altering the mode of feeding the infant altogether? There can never be any difficulty in procuring ten drops of the milk as a sample, and the whole analysis can be usually done in one day. Should these preliminary remarks attract the attention of any gentleman who has cases suitable for the process, I shall be glad to join him in extending the field of inquiry.

January, 1871.

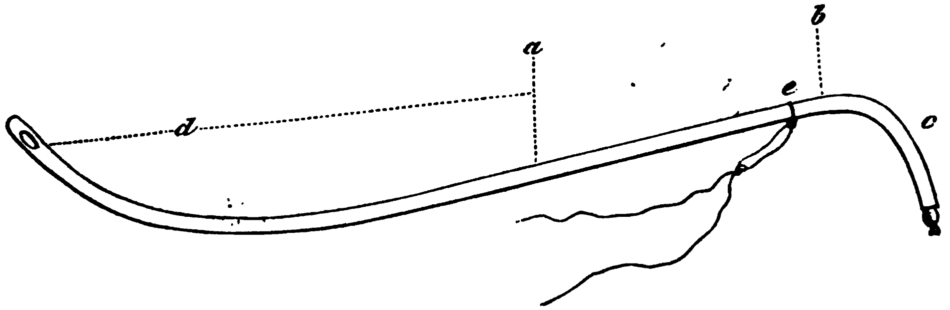
ON AN

IMPROVED VULCANISED INDIA-RUBBER CATHETER, FOR RETAINING WITHIN THE BLADDER.

By Sir Henry Thompson,

Surgeon-Extraordinary to H.M. the King of the Belgians;
Professor of Clinical Surgery and Surgeon to
University College Hospital.

For many years I have used the vulcanised india-rubber catheter for tying in the urethra and bladder, and have found it, as many others have done, extremely valuable from its perfect flexibility, and the consequent small liability to excite irritation which its presence produces. In most cases it is easily kept in place by a loop of soft twine, loosely tied round the penis, just behind the glans; but in a few instances this very quality of flexibility, which is so advantageous, permits the escape of the instrument from the canal, and difficulty is experienced in efficiently retaining it there. Hence Mr. Holt's suggestion of "wings" to the end of the instrument which lies within the bladder. Efficient as these may be when *in situ*, although they unquestionably sometimes occasion irritation, an instrument so furnished does by no means always pass easily, and usually causes more uneasiness, both in the act of passing and afterwards, than a catheter not furnished with such appendages.



Improved vulcanised india-rubber catheter.—*a* to *b* shows the length of the German-silver tube which at this part lines the tube and stiffens it. *c*. Anterior portion of catheter, which remains flexible, and conducts away the urine; a peg is fitted into it. *d*. Posterior portion of catheter, which remains flexible, and rests in the urethra and bladder. *e*. A piece of stout silk, the free ends of which, lightly tied behind the glans penis, secure the catheter in its place.

The problem, then, is to efficiently maintain the soft vulcanised catheter in place without making additions of this kind. This I have accomplished, I believe completely and successfully, in the manner following:—Into an ordinary vulcanised india-rubber catheter, say about the size of 8, 9, or 10, or more, according to the requirements of the case, a thin German-silver tube, about four or five inches long, is introduced by the maker, so that the last six inches or the catheter remain as flexible as ever, also about two inches of the anterior part, to form a spout or conductor outwards for the urine. This being done, the calibre of the interior is still nearly uniform,—the thinness of the metal tube and the elasticity of the india-rubber being so accomodated to each other as to accomplish this object. This description has been practically realised for me by Messrs. Weiss, the well-known instrument makers. (See figure.) The instrument is furnished with a silk cord to fasten it, which, owing to the metal tube, cannot diminish the choke or diameter.

The advantages of this catheter are several:—

First, not only is it not more difficult to pass, but less so than the original instrument without wings, since the metal tube affords a handle which almost invariably carries the flexible part beyond it easily into the bladder

Secondly, when the loop of silk with which the catheter is provided is loosely tied behind the glans, it is next to impossible for the instrument to escape; the want of flexibility in the silver part securing this. In special cases to which it is desired, the silver may be shortened to two or three inches with perfect security.

Lastly, since no appendage exists in that part of the catheter which is within the bladder, the liability to retain any phosphatic deposit is reduced to a minimum, and no special attention to remove such foreign matter is always necessary. In one instance I kept it in six weeks without the slightest incrustation occurring. It is, however, as a rule prudent to remove the catheter every few days to observe if any takes place, and this is a matter of no conseqence, as no difficulty or pain arises from its reintroduction.

Wimpole-street, W., January, 1871.

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REVACCINATION AND ITS RESULTS.

By Robert Batho,

Staff Assist.-Surg., in Medical Charge of Depot of Foot Guards.

At a time like the present, when small-pox is epidemic, and increasing numbers of cases are recorded every week, public attention is naturally directed to the means of lessening the frequency or the severity of the disease—namely, vaccination and revaccination. I shall confine my remarks to the latter subject.

The necessity for the performance of revaccination has long been recognised by the military authorities, who require that all recruits on joining any branch of the service shall at once be subjected to it, unless a certificate be produced that the recruit has recently undergone the operation successfully. To this may, no doubt, in a measure, be attributed the comparative immunity of the army in the present outbreak. I do not know if the fact of belonging to the sect called the "Peculiar People" has ever been urged by a recruit as a plea for the remission of the operation in his instance, but I am quite certain it would not be entertained, revaccination being compulsory in her Majesty's service.

The recruits who have joined the depôt of the brigade of Foot Guards at Warley, Essex, during the year 1870 have amounted in number to 797. They consist of young men of ages varying from seventeen to twenty-six; and as they are derived from all parts of the United Kingdom, they may be assumed to be fit representatives of their age and class, and fairly to indicate the working of the Vaccination Act. From the records to which I have access, I find that of these 797 recruits, 75 (or 9·4 per cent.) had never been vaccinated at all prior to enlistment; whilst of the remainder, 693 showed perfect cicatrices of former vaccination, and 29 had suffered from small-pox. The fact that small-pox may, in exceptional cases, affect a man more than once is recognised by the army authorities; and the recruit, even if plainly marked by the disease, is subjected to vaccination on enlistment. I find therefore that of these 29, 8 instances of "perfect vesicle" resulted from revaccination; 7 were returned as "modified," and 14 (or less than half) as "failures." These results may, to some, appear surprising: they seem, however, to indicate (as expressed in the leader above mentioned) that the "immunity conferred by one attack of the disease is not absolute, but relative." Of the 693 men who had already perfect cicatrices and were revaccinated, 280 results were recorded as "perfect," 206 as "modified," and 204 as "failures": 3 results were unknown, the recruits having absented themselves without leave. Surely, with a percentage of only 29·4 of total failures, no argument to prove the necessity of revaccination can be required. During the year 1870 only one case of small-pox occurred at this depôt; and it is in-

TABLE I.

	Totals.	Results of Revaccination.		
		Perfect Vesicles.	Modified Vesicles.	Failures.
Recruits bearing no marks of vaccination.	75	68	7	0
Recruits bearing marks of small-pox...	29	8	7	14
Recruits with perfect cicatrices of former vaccin ...	693	280	206	204*
Totals ...	797	356	220	218

* Add 3, deserted.

TABLE II.

Source of Lymph...	Totals.	Results of Revaccination.		
		Perfect Vesicles.	Modified Vesicles.	Failures.
Directly from arm	190	134	24	32
From points (Vaccine Inst.) ...	387	189	87	111†
From tubes (Vaccine Inst.) ...	220	36	98	86
Totals ...	797	359	209	229

† Including 3 deserted.

teresting to remark that, though the patient bore perfect marks of vaccination in childhood, revaccination failed when performed here.

For convenience of reference I have tabulated the above statements. (Table No. I.) I also subjoin a table (No. II.) showing the manner in which the revaccination was performed. From this it will be seen that of those vaccinated directly from arm to arm 70·5 per cent. of "perfect" results were obtained, whilst with points the percentage fell to 46·2, and with tubes to 16·3.

Warley, Jan. 27th, 1871.

◆

A CASE OF

PERFORATING ULCER OF THE STOMACH; RECOVERY.

By J. Alexander Ross, M.D.,

House-Physician to the North Staffordshire Infirmary.

The following case was brought before the notice of the North Staffordshire Medical Society during last session. The notes of the case are given as they were taken in December, 1869.

A hospital servant, aged nineteen, of rather sallow complexion, exhibited for some time symptoms of chronic gastritis. About three years ago, when going down stairs, she leaned on the balusters, poising herself so as to slide down. This produced some pain in her side. Since then she has had pain generally after meals, and particularly after dinner. Occasionally of late food gave great pain, and was immediately vomited; this pain, she said, felt as if "something were scraping her back-bone," and it sometimes shot up between her shoulders. Pyrosis has been a frequent symptom. The bowels, though at times constipated, have been on the whole pretty regular.

These symptoms continued until Thursday, Dec. 31st, when she felt ill from a gnawing pain in the epigastric region, in consequence of which she did not eat any food during the whole day. This subsided towards evening, and she went to bed about 10 P.M., and slept comfortably until about 2 A.M., when an excruciating pain, very sudden in its aggression, seized her at the epigastrium, shooting up into both shoulders, but especially into the left. Her screams were piercing.

When I saw her, which was a few minutes after the commencement of this pain, I found her collapsed, the face pale and covered with a clammy sweat, the eyes sunken, the knees drawn up, the breathing short and rapid; she could not speak. At this time she appeared listless, except when a paroxysm of pain came on, and these were very frequent. Though she appeared careless with regard to her critical condition, yet she was afraid to breathe naturally because it increased the pain. There was not any vomiting. I gave her forty minims of the sedative solution of opium, and, this not having given her any ease, she had, after half an hour had elapsed, another dose of thirty minims. Even this produced little or no effect, so, after an hour, she was ordered to have a quarter of a grain of morphia every second hour until morning. Fomentations were applied to the abdomen and a hot-water jar to the feet.

In the morning I found her a little easier, but she had not obtained any sleep. The abdomen was inflated and resonant; the pain remained intense and general; the collapse was present to a great extent; the bowels had not been opened; she was able to pass water; pulse 130, hard and small. Gradually she became worse until the third night, when she appeared to be unconscious of all around.

On being informed that she had not passed any water, for thirty-six hours, I determined, though there was no tumour in the hypogastric region, to introduce a catheter, through which only an ounce of high-colored urine came. The pulse was then 140, and the abdomen considerably distended; in short, there was all the symptoms of severe acute peritonitis, including vomiting of a dark-brown fluid.

Next morning she passed some water; she then felt easier, but there was still considerable prostration. No evacuation of the bowels had taken place since the commencement of the attack.

For the first and second days she took one-sixth of a grain of morphia and a grain of calomel every hour. A light poultice was kept constantly applied to the abdomen, the bedclothes being supported by a cradle. On the third day the pills containing calomel and opium were given every third hour, and on the fourth day they were discontinued, and one-sixth of a grain of morphia given alone every third hour. At no time did the pupils become contracted, and she slept very little. After the fourth day she gradually improved. On the fifth the bowels were evacuated four times, the motions being composed chiefly of blood and mucus. She was able to sit up on the fourteenth day and soon afterwards went home.

The question naturally suggests itself, What was the cause of this collapse, and this sudden attack of peritonitis? Reviewing the history of the case and the suddenness of the seizure—to which feature Watson and other eminent writers attach much importance,—as well as the other symptoms, I think we must come to the conclusion that it was an instance of chronic gastritis ending in perforating ulcer of the stomach. It may be urged against this view that such cases uniformly have a fatal termination; but well-authenticated cases of recovery are on record. Conspicuous for its conclusiveness amongst these is one the details of which are given in "Guy's Hospital Reports," vol. iv., 2nd series. The patient, a girl, had all the symptoms of perforation, but recovered. Subseqently she died from the same disease, and on examination two open ulcers of the stomach were found, and the cicatrix of the old one, with adhesions between the stomach and adjacent parts and between the coils of intestines.

Dr. Taylor, in is work on Medical Jurisprudence, remarks on the invariably fatal issue of these cases when the contents of the stomach escape into the peritoneal cavity, and the favorable issue sometimes resulting when the contents do not escape, adhesions having previously taken place; he also notices the suddenness of the attack in a person enjoying apparently good health. Now this girl had not eaten anything for at least twelve hours previously; consequently there would be little, if any, fluid to escape when the perforation occurred, supposing that adhesions had not taken place. But when we consider the chronic nature of the case, and the local irritation which had been operating for a length of time in the immediate vicinity of a very sensitive serous membrane, it is but reasonable to suppose that adhesions had taken place to some extent. The remarkable tolerance of opium is well illustrated by the foregoing details.

North Staffordshire Infirmary, Dec. 1870.

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VACCINATION WITH LYMPH DILUTED WITH GLYCERINE.

By **Stephen MacKenzie**, M.R.C.S.,

Resident Medical Officer to the London Hospital.

At the present time, when the subject of vaccination is occupying so largely the attention of the profession and the public, and when, owing to the sudden demand, there is difficulty in obtaining a sufficient supply of lymph, the following short communication may prove of interest.

Having read the report of Dr. Burdon Sanderson on Contagion, having also read of the employment in France of lymph diluted with glycerine, and, especially, foreseeing that, owing to the severe epidemic of small-pox now raging, we might be called upon suddenly to vaccinate all our patients, and find great difficulty in procuring a sufficient quantity of lymph, I advised Mr. Herman, the resident accoucher, to apply to Dr. Seaton for information on the subject. Dr. Seaton, however, was unable to afford him any.

On February 3rd, a little girl, who had been admitted nine days previously with an hydatid tumour of the liver, presented symptoms of small-pox, although there was none in the hospital. She was at once removed, and it was deemed advisable to vaccinate all the patients in the sub-ward in which she had been. As Mr. Herman had very little lymph, not sufficient to vaccinate all the patients, I suggested his diluting what he had with glycerine. This he did by adding, on a piece of glass, forty drops of Price's pure glycerine to the contents of two capillary tubes of vaccine, and stirring them up well with the point of a lancet to ensure their being thoroughly mixed. There were eleven patients vaccinated. In each case the operation was performed in two places on the same arm, by a series of superficial scratches with a lancet. On Feb. 10th (the eight day) the results were as follows:—

1. Age, seventeen years. Advanced phthisis. Vaccinated in infancy, and having one good scar on her arm. Two good vesicles, no inflammation.

2. Age, seventeen years. Advanced phthisis; greatly emaciated. Vaccinated in infancy; one not very good scar. One imperfect vesicle.

3. Age, eighteen years. Extensive heart-disease after rheumatic fever. Vaccinated in infancy; three good scars. Two good vesicles, accompanied by some little inflammation.

4. Age, eighteen years. Acute rheumatism. Stated to have been vaccinated three times; but there were no scars on the arm. Two very imperfect vesicles, which had shrivelled up.

5. Age, twenty years. Heart-disease; very anæmic. Vaccinated in infancy; one scar. Two not very good vesicles.

6. Age, twenty-two years. Acute rheumatism, with endocarditis. Vaccinated in infancy; three good scars. Two very good vesicles, no inflammation.

7. Age, twenty-seven years. Subacute rheumatism. Vaccinated in infancy; two small scars. Two good vesicles, no inflammation.

8. Age, forty-four years. Heart-disease and sciatica. Vaccinated in infancy; three good scars. Two good vesicles, some little inflammation.

9. Age, fifty-seven years. Phthisis; very ill. Stated to have had small-pox when young; no scars of small-pox or vaccination. Two good vesicles, no inflammation.

10. Age, seventy-one years. Gastric disease, probably carcinoma. Stated to have been "inoculated" in infancy, and to have had small-pox when four years of age; no scars on arms. Two good vesicles, no inflammation.

11. Age, thirty-nine years. A complication of heart- and kidney-disease. Unknown whether vaccinated, or if there were any scars. This patient died on the fifth day after vaccination, but the arm was "beginning to take."

These cases are not very numerous, but as far as they go they show, in my opinion, that lymph diluted to the extent we used it is as potent as undiluted lymph. They are interesting also as showing how persons, even when suffering from acute and chronic diseases, who have only been vaccinated in infancy, though there be good scars, are susceptible of the influence of the vaccine virus. There were only two cases in which the operation was attended by any inflammation, and this was not nearly so severe as is often seen in persons who are revaccinated. Both these cases were allowed to be up during the daytime, and this, perhaps, will account for its occurrence.

More patients have been vaccinated with lymph diluted in the same way, but the results are not yet known.

February, 1871.

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ON THE COLOR OF THE EYES OF THE NEWLY BORN.

By **Alfred Wiltshire**, M.D., M.R.C.P. Lond.,

Junior Physician to the West London Hospital, Physician to the British Lying-in Hospital and to the Samaritan Hospital, late Medical Inspector to H.M. Privy Council.

Some years ago I was struck with the fact that all the newly-born children I saw had blue eyes. I have not met with an exception to this observation. The color is peculiar; it is slaty, mercurial-ointment, or leaden blue, generally different from the blue color which obtains in after-life. Owing to the heaviness of the hue, infants are somtimes said to have "dark" eyes, when, on closer inspection, the eyes are seen to be of the dull-blue color just described. A change in what I would call the "fœtal" blue is usually observable towards the sixth or eighth week after birth. I have seen it as early as the third or fourth week, but I think the cases were exceptional. If the eyes are destined to become "dark"—that is, hazel-brown or black,—a brownish hue overspreads the leaden blue, and, in the course of a few months, effaces it. The change being very gradual, its progress can be watched from week to week. During the period of change the eyes undergo such alterations of color as may be expected from the mixing of brown in increasing proportions with a heavy blue. Some eyes appear to remain permanently of a color that may be called "transitional"—transitional, that is, as regards the hazel-eyed. Such eyes are of the most varied and indescribable hues.

Eyes that ultimately become brightly blue, whether the shade be light or dark, gradually clear up as it were, like the sky after a thunderstorm, and a clear-tinted blue iris is the result. This may be called the "adult" blue. Eyes that become gray in after-life undergo a similar change. So far as my observations have extended, I have been led to the conclusion that the eyes of *all* newly-born children are blue, whether they be the offspring of light- or dark-skinned races. Nay more, I am inclined to think that all newly-born animals have blue eyes. Until recently I have been unable to find any record of such an observation as the foregoing (which I now venture to put forward as the result of much personal investigation, and after the examination of a large number of infants' eyes), but my valued friend and former teacher, Dr. Sharpey, has kindly referred me to the following passage in the article "Die Physiologie in ihrer Anwendung auf Augenheilkunde," by Ructe in *Wagner's Handwörterbuch der Physiologie*, vol. iii., part 2, p. 325, 1846. Dr. Sharpey's translation is as follows:—

"In the new-born infant the pigment coating the uvea (posterior surface of the iris) is fully formed, whilst it is not yet present in the stroma of the iris, so that infants are born with blue eyes. Should no pigment be afterwards developed in the stroma the eyes remain blue, and only become lighter in proportion as the tissues of the iris lose their transparancy. Should the pigment be scanty and scattered, the eyes become of a light grey-brown; should there be more, they become nut-brown, and finally deep dark-brown. Cases often occur where the pigment is confined chiefly to the border of the pupil, whilst the rest of the iris has little. Indeed, parti-colored eyes are not uncommon."

The fact that the newly-born have eyes possessing invariably a blue color, may possibly prove of use in certain medico-legal investigations where the question of identity of infants is involved. Indeed, my knowledge of the subject of baby-farming, which happens to be special, assures me that at times it must be all-important. The Wicklow peerage case affords, I believe an instance in point. And, under any circumstances, it is a matter of interest to obstetric practitioners and others. Any medical brother (especially if practising in tropical or other regions inhabited by dark-skinned races) who will kindly test my observation, by examining the eyes of newly-born children, can readily convince himself of its correctness, or the reverse; and in any case I shall be glad to hear the result.

Wimpole-street, Dec. 1870.

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ON A

NEW AND SAFE MODE OF DELIVERING IN ARM PRESENTATION,

AFTER THE USUAL MODE OF TURNING HAS FAILED OR BEEN IMPRACTICABLE.

By PARK B. TUCKER, M.D.

MRS. A.——, age twenty-nine years, wife of a private of the 61st Regiment, mother of two children, was taken in labour on the 14th May, 1870 (a midwife being in attendance). Next day it was discovered that the arm had descended after the escape of the waters. Alarm was taken, and the Assistant-Surgeon of the Regiment was called in, who endeavored to turn; but, failing to do so, called another surgeon, with no better success. On consultation they properly resolved to hand the case over to a more experienced civil practitioner, a Dr. Rees of this town, who, after repeated trials, also failed to relieve the poor woman. On the 18th Dr. Rees advised the husband to call on me. After manipulating, I found it was impossible to turn the child, and I resolved to repeat an operation which I had successfully performed some years ago in a similar case. Having placed the patient as for lithotomy, I perforated the body of the child and emptied the abdomen and thorax sufficiently to enable me to reach the bodies of the spine of the fœtus, and crushed the same with a pair of tooth forceps (having no better instrument at hand), using the index finger of the left hand as a guide. The same happy result followed as in my previous case —viz., bending of the body, and its descent sufficiently low to enable me to pass a handkerchief round the child, when, making traction, the pelvis and lower extremities soon descended, followed by the trunk and placenta. The child was a very large one.

The poor woman suffered comparatively little, and made a good recovery, as will always be the case if proper care is taken not to make too large an opening for manipulating with the forceps. I consider this mode of proceeding much safer than embryotomy, for the soft parts cannot be injured if precaution is used during the operation; and, moreover, the child is not much mutilated, which is always agreeable to the friends. Instead of tooth forceps I would recommend a pair of spring-cutting blunt pliers, with long arms, such as is used by dentists for cutting off incisor teeth, but on a much larger scale, which would greatly facilitate the operation.

I have to express my grateful thanks to my friend, S. W. Handy, Assistant-Surgeon of the 61st Regiment, who most kindly and ably assisted me with the case throughout.

Bermuda, Jan., 1871.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

KING'S COLLEGE HOSPITAL.

THE following operations were performed at this hospital on the 14th of January.

(By Sir WM. FERGUSSON.)

Operation for Cleft Palate.—The patient was a young girl who had originally had hare-lip, and a cleft involving the soft and the hard palate. The hare-lip had been successfully treated in a former operation; the fissure in the soft palate in a second; and a third operation had resulted in the formation of a bridge of union across the centre of the tissues corresponding to the hard palate. On the present occasion Sir William Fergusson was content to deal only with the fissure remaining behind the bridge, reserving the anterior defect for a future operation. The edges were brought together with silk sutures.

Operation for Hare-lip.—In this case the patient had undergone elsewhere an operation which had failed to effect the necessary union at the upper and lower portions of the fissure: the result was that there remained a nostril of abnormal length, and a considerable notch in the lip. Sir William Fergusson drew attention to an obvious redundancy of tissue about the upper lip, which, he said, suggested that the cause of the partial success of the first operation was, that the surgeon had been too sparing of the use of the knife. Observation of cases of his own, on which he had operated years ago, had convinced him that the dread in which surgeons usually stand of cutting too freely, when operating on infants, is not only groundless, but a frequent cause of failure. He removed from the lip a triangular portion, of which the apex came from the posterior boundary of the nostril, and the base of which included the notch in the lip, and measured about half an inch. Having brought the edges of the wound together by means of three hare-lip pins, he painted the whole with collodion.

Operation for Anchylosis of both Hip-joints.—The patient was a delicate boy, in whom articular inflammation of both hip-joints, occurring in the course of an attack of acute rheumatism, had resulted in anchylosis. There was some shortening of the right leg, which Sir William Fergusson attributed to an arrest of development of the articular end of the femur of that side. Exercising some force, he carefully manipulated each thigh back to about a right angle with the pelvis. In the case of the right limb, some strong adhesions had to be overcome, and some roughness was felt; but Sir William did not think that the cartilages were seriously affected on either side. Movement of the limbs was to be repeated from time to time.

Perineal Section.—This operation, and the following one by Mr. Henry Smith, afford good illustrations of how much the use of a grooved staff, as recommended by the late Professor Syme, contributes to the successful completion of the operation on the urethra which has been associated with his name.

The patient's perineum presented a urinous fistula, and bore marks of incisions made for the relief of extravasation. Sir William Fergusson succeeded in introducing the grooved staff through several strictures, but the most careful efforts failed to insinuate it beyond the membranous portion of the urethra. He therefore directed the instrument to be maintained in the position it had attained, and proceeded to make the usual incisions. On the staff being withdrawn, he found it necessary, in order to introduce a bougie, to divide one of the other strictures by an incision at the root of the penis; and then, after the most persevering efforts, and resort to every expedient, it was found impossible to pass any kind of instrument into the membranous urethra. Having provided a free external opening for the discharge of urine, Sir William said he should not further interfere with the case unless the patient should show symptoms of stricture of that portion of the urethra which had opposed the passage of instruments.

(By Mr. Henry Smith.)

Perineal Section.—This patient, also, had a perineal fistula, and showed traces of urinous infiltration about the hinder part of the scrotum. No difficulty was met with in passing a fine grooved staff into the bladder, and, the urethra having been divided, a No. 9 catheter passed readily through the stricture, and emitted a copious stream of urine. Mr. Smith afterwards visited the patient in the ward, and, having tied the catheter in the bladder, ordered him a glass of brandy-and-water.

Operation for Obliteration of a Vascular Tumour of the Forearm.—A vascular tumour of such size as the one in question is of rare occurrence on the upper extremities. It was of spongy consistence, presented no pulsation, and appeared to consist of venous sinuses. Mr. Partridge had operated on the patient two years ago, employing hare-lip pins as for nævus. Seven weeks ago the patient returned with the tumour so increased as to extend from within two inches of the lower extremity of the ulna to two or three inches above the elbow; in this latter situation it expanded into a mass of about the size of a man's fist. Mr. Smith had strangulated the mass at the upper extremity of the tumour with a subcutaneous suture, and passed half-a-dozen pins transversely beneath the remainder. As the patient was a footman, and anxious to return to his employment, a third and supplementary operation was performed on this occasion by the passage of another subcutaneous suture round the upper mass, which had much diminished, and of two more pins beneath what remained of the longitudinal process. Two small tumours of a similar nature, one on the ring finger, and the other on the little finger of the corresponding hand, were also operated on by the passage of a pin above and below the situation of each respectively.

OPERATION TO COVER A PROTRUDING TESTIS; FAILURE; EXTIRPATION OF THE GLAND.

(Under the care of Mr. Henry Smith.)

On a recent occasion Mr. Henry Smith operated on the following case of disease of the testis, which presented some features of interest. The patient was an unhealthy-looking man of forty, who denied ever having had any venereal complaint, but had on one leg a dark cicatrix, which looked very much like the scar of a tertiary syphilitic sore. Two years previously he for the first time noticed an enlargement of the left testis, which continued to increase until a few months since, when an ulcer formed in the anterior of the scrotum, in consequence of the skin having given way in that situation. Thus the patient was admitted with protrusion of an enlarged and exceedingly hard testis through an ulcerated opening of about the size of a crown-piece. The skin adjacent to the opening was also in an unhealthy condition.

In the course of a few days Mr. Smith made an attempt to cover the testicle by Syme's method of dissecting the skin from around so as to make a flap on either side; these were easily brought over the testis and united by hare-lip pins. In the course of forty-eight hours, however, the skin sloughed, and there occurred a much larger protrusion of the testis, which increased day by day until it became clear that there was no possibility of saving the gland; it was accordingly completely extirpated by the following modification of the usual operation. The testis having been cleared from the surrounding tissues, and the cord laid bare, the latter was compressed between the blades of a hæmorrhoidal clamp and then divided. The blades of the clamp were then slowly unscrewed, and as soon as the artery was seen to pump, it was secured with a ligature. The testis, on examination, was found to be extensively diseased; large tubercular masses of deposit, some of which were in a state of softening, were scattered here and there over the greater portion of the organ. It was quite clear that the gland could not have been saved.

Mr. Henry Smith drew attention to the circumstance of his having modified the operation by the use of his hæmorrhoidal clamp at the suggestion of the house-surgeon, Mr. Rope, and said that he was glad to find that it had answered very well, preventing all but a very slight loss of blood. Of the failure of the first operation the condition of the testis was a complete explanation; and he hoped that the pupils would not, from the experience of that one case, be induced to conceive a prejudice against a proceeding which in other instances they had seen followed by excellent results.

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CHARING-CROSS HOSPITAL.

STRANGULATION OF A LOOP OF INTESTINE BY FIBROUS BANDS; DEATH.

(Under the care of Dr. Salter.)

Thomas K——, aged sixty-nine, was admitted into the hospital, suffering from the symptoms of intestinal obstruction. He stated that he had always been liable to constipation, and six years ago was admitted as an in-patient for an attack similar to the present, which was relieved by enemata.

It appeared that his bowels had of late been much confined, and he had been obliged to make frequent use of purgative medicine, and thus an action had been obtained daily until thirteen days previously. Since then he had had no evacuation, notwithstanding the repeated administration of powerful purgatives. His pulse was 72, he had no abdominal pain or tenderness, and at first no distension. He vomited frequently, and the ejecta were stercoraceous. In a few days the lower part of the abdomen became decidedly distended, the distension being confined to the part below the umbilicus; then, gradually increasing, it at last became considerable. There was no distension of any part of the colon. Large quantities of enemata were retained, and an O'Beirne's tube was passed high up into the rectum. The obstruction, however, resisted all treatment, and, worn out by vomiting, the man died of inanition on the 22nd of November, ten days after admission, and nearly a month after the bowels had ceased to act.

Post-mortem examination.—On opening the abdomen the peritoneum was found to be only slightly inflammed. There was some distension of the ascending, transverse, and descending colon, as though the obstruction had existed at or near the rectum; but the bowel being carefully examined and found to be free from disease, it appeared probable that the gaseous distension was a post-mortem result. The ileocæcal valve was patent. Tracing the small intestine from below upwards, the cause of the obstruction was met with at the upper portion of the ileum, where a knuckle of intestine had slipped through two old fibrous bands or cords in a very curious way, by which a piece about three inches in length was doubly strangulated. One of the cords was attached below, and, passing upwards, turned over the margin of the bowel and constituted the upper or proximal constriction; the other, attached above, passed downwards, crossing the first, and gripped the lower margin of the bowel, forming the distal or lower constriction. It looked, at first, as if the two bands passed completely round the loop of intestine, and might indeed be one, but, on examination, this was found not to be the case—they were entirely separate and distinct; and how the intestine could have become thus engaged, or what was the previous relation to these bands, and of the bands to each other, it was not possible to ascertain. It was found impossible, not only to release the intestines from the grip of these bands and so to place them in a natural unconstricted condition, but also to place them in any position whatever which would relieve them of strangulation. One of the bands arose from the mesentery close by, the other from the wall of adjacent ileum; they were as round as whipcord, dark, smooth, and shining, and reminded one of a leather boot-lace, or still more of a certain round cord-like seaweed which presents a similar appearance. No doubt they were the products of some long past peritonitis. Above the constriction the bowel was capacious, distended, and slightly inflamed; below it was small, contracted, pale.

Dr. Salter pointed out that in such cases two things had to be determined: the one, the *existence* or not of mechanical obstruction; the other, the *seat* of the obstruction, if it existed. And he insisted on this last point being of almost equal importance with the first, as on it depends the possibility of surgical interference for the relief of the obstruction. For colotomy to be admissible, it must be well ascertained that the obstruction is below the point at which the bowel would be reached.

The points which indicated the *existence* of mechanical obstruction in this case were—(1) the sudden and apparently causeless cessation of the daily action of the bowels, unattended with pain or any symptom that would imply a spasmodic or inflammatory source of intestinal inaction; (2) the powerlessness of all the purgatives that were heaped one upon another before the patient's admission; (3) the establishment of constant and persistent vomiting; (4) hiccough; (5) the stercoraceous character which, after a few days, the vomited matter presented, and maintained up to the fatal termination of the case; (6) tympanitic distension of the bowels. Of the physiology of hiccough in intestinal obstruction Dr. Salter had never heard a satisfactory explanation; all the other symptoms were the obviously necessary result of the obstruction to which they pointed.

With regard to the *locality* of the obstruction, the principal indication of its being situated in the small intestine, and not in the large, was the absence of all that distension of the colon which, when obstruction occurs low down in the bowel, is generally so conspicuous. The tympanitic bulging of the ascending, transverse, or descending colon, which is often so marked, had been entirely wanting in this case during life. Such distension, however, was manifestly present in the small intestine, and produced the fulness in the umbilical and hypogastric regions which has been referred to. Moreover, nutrient and purgative enemata were retained without difficulty.

Dr. Salter pointed out how this case illustrated the uselessness and the mischief of the practice, so commonly adopted in cases of intestinal obstruction, of endeavoring to overcome it by strong purgatives given by the mouth, and which had been for several days pursued in this case prior to its admission to the hospital. Such a course could only result in augmenting the sufferings, and adding to the danger, of the patient. The proper plan was, to give opium freely, with other remedies likely to relax spasm, if such existed, and to obviate the supervention of peritonitis; to endeavor to relieve the bowels from below by enemata of various kinds; to administer nutrient enemata; and to give purgatives only as a last resort—a forlorn hope—when a fatal issue was so plainly inevitable that the effect of the purgatives, if unsuccessful, would not materially prejudice the patient's condition.

Dr. Salter's impression had been that the obstruction was nearer the termination of the ileum than it turned out to be. He said that if the exact nature of the obstruction, and the exact seat of the constricting bands, could have been ascertained during life, this was one of those cases that might have been successfully treated by cutting down upon the intestine, and dividing the strangulating cords.

WEST LONDON HOSPITAL.

FACIAL PARALYSIS FROM FRIGHT.

(Under the care of Dr. Wiltshire.)

In the following case the cause of paralysis was peculiar and unusual. It is, doubtless, allied to those cases in which convulsions, loss of mental power, and like symptoms are produced by terror.

The patient was an intelligent little girl, aged five years, of whom the following account was given:—Four days previously she had been much frightened during her mother's absence from home. On the following morning the mother noticed that the child's mouth was drawn to the right side, and, thinking that she was playing with her mouth, scolded her; but it soon became evident that the distortion was not voluntary. On admission it was found that, when the face was at rest, the paralysis was not betrayed; but during crying or laughing the mouth was considerably drawn over to the right side. The left eye watered considerably; it could not be closed. There was no ptosis; nor were there any decayed teeth, enlarged glands, or evidence of the existence of worms. There was no otorrhœa or other symptom of disease of the temporal bone, nor squinting, nor paralysis of any other part of the body. The child was rather restless during sleep. A grain of bromide of potassium was ordered to be given three times a day; and thirteen days after admission the following note was taken:—"Has slept much better since taking the medicine. There is decidedly less paralysis. The left eye discharges a good deal, but is not inflamed." On the thirty-second day it was noted that there was "scarcely any evidence of paralysis remaining; in fact, the only sign is a slightly quicker and more complete blinking of the right eye than the left when one pretends to give the child a blow in the face." On the forty-sixth day the child ceased to attend.

Three months later the child was brought again to the hospital suffering from scarlatinal dropsy. It was ascertained that she had had no return of the paralysis, and presented no trace of it. No form of electricity was employed; the treatment consisted solely in the administration of bromide of potassium in three-grain doses—a therapeutic agent to which, Dr. Wiltshire thinks, the recovery can hardly be attributed.

STONE IN THE BLADDER; LITHOTOMY; RAPID RECOVERY.

(Under the care of Mr. Teevan.)

W. P——, a plump, healthy-looking boy, aged four, was brought to the hospital suffering from symptoms of stone. His mother had noticed that he had rubbed the private parts for the last six months, that he cried when urinating, and occasionally passed blood. Mr. Teevan detected a caculus on sounding; and in a few days the boy was put under chloroform. Having introduced a very short, rectangular staff, Mr. Teevan opened the bladder by a free lateral incision, and extracted with the left forefinger a small lithic-acid stone, weighing one scruple. After the operation there did not occur the slightest constitutional disturbance; the boy ate and slept well, and in six days began to pass water per urethram. Five days later all the urine passed the natural way. The wound was quite healed on the twentieth day, and, when the child left the hospital a few days later, he did not suffer from incontinence of urine.

Mr. Teevan remarked that this case exhibited the merits of cutting a stone out of the bladder rather than tearing it out by the pseudo process of dilatation, for the child made a rapid recovery, and was free from that distressing sequel of lithotomy, incontinence of urine, which so often follows what he termed the lacerating method of dilatation. It was impossible to extract even a small calculus from a child without either tearing or cutting the deep fasciæ, inasmuch as the prostrate was quite rudimentary till the age of puberty, and there could, therefore, be no doubt as to the impropriety of the method of operating by dilatation. To the use of a limited internal incision were attributable all those difficulties and accidents which have occurred in operations on children, for, if the aperture were insufficiently large to admit the forefinger, the bladder would be pushed up into the abdomen, away from the staff, or the surgeon would find himself groping about in the ischio-rectal fossa. The medium operation was not justifiable, for it was attended with a larger mortality than the lateral operation, and was more likely to cause permanen impotence.

LONDON HOSPITAL.

CASE OF SCALD OF THE GLOTTIS; REMARKS ON THE AVOIDANCE OF TRACHEOTOMY.

(Under the care of Mr. HUTCHINSON.)

CASES of scald of the glottis arising from attempts to drink out of a kettle are not very uncommon accidents in the practice of large hospitals. A case of such severity as to necessitate the performance of tracheotomy occurred recently at the London Hospital. The patient was a little boy aged three years, and the evidence given by his father was to the effect that the water was absolutely boiling at the time that the child attempted to drink. The dyspnœa on admission was very urgent, but for about twelve hours the operation was deferred, and it was attempted to reduce the œdema by causing the child to suck ice and drink iced milk. The dyspnœa, however, at length became such as to threaten almost immediate death; and Mr. Kibbler, the house-surgeon in charge of the case, decided on performing tracheotomy. Though great relief ensued, and on the following day the child breathed comfortably, yet it sank, and died about thirty-six hours after the operation.

The post-mortem showed large white patches on the pharynx and about the rima; the whole of the epiglottis had been scalded, and the greater part of its mucous membrane was shrivelled and seemed about to slough; the mucous membrane covering the arytenoid cartilages, and that within the larynx, was swollen; there was no evidence of scalding in the œsophagus or the stomach. The lungs were extensively congested, large portions of their posterior lobes being in the first stage of pneumonia. A good colored sketch of the parts has been preserved.

In commenting on this case, Mr. Hutchinson stated that he quite approved of the practice which had been pursued in deferring the operation as long as possible. Urgent dyspnœa was a very common condition in the first instance after these accidents, and this in a great majority of cases would subside under ordinary treatment. If tracheotomy were resorted to during the early stage of the dyspnœa, it might perhaps now and then obtain the credit of saving a patient who would have progressed very well without it; but, on the other hand, it might perhaps add new and not inconsiderable risks to his condition. Young children did not bear tracheotomy well, and the subjects of the accident in question were always young. Mr. Hutchinson believed that he had often seen the operation resorted to prematurely, and to the patient's hurt; and of late years he had systematically dissuaded his house-surgeons from performing it, excepting under very urgent circumstances. It was quite true, he said, that now and then a child would die from œdema of the glottis if tracheotomy were refused. The average of success would, however, he believed, be much greater in the hands of a surgeon who refrained from operating as long as possible, than in those of one who acted according to the opposite rule. The cases in which the operation appeared to be absolutely required were probably, like the one in point, of such severity as almost necessarily to end fatally; and it was not to be forgotten that, apart from the dyspnœa caused by swelling of the mucous membrane, the destruction of that tissue about the epiglottis and pharynx was likely, in itself, to be productive of a dangerous degree of constitutional irritation.

Mr. Hutchinson added that, on the other hand, he had known tracheotomy, performed (by Mr. Barret) under very urgent circumstances, to save a life which would in all probability have otherwise been lost; and that in another case he had known a child, in whom it was attempted to avoid the operation, die with œdema of the glottis. The rule should be for the surgeon to remain with his patient, ready whenever the necessity might occur, and to watch very carefully the tendency of the symptoms.

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ROYAL OPHTHALMIC HOSPITAL, MOORFIELDS.

NÆVUS OF THE ORBIT, PROTRUSION OF THE EYE, AND SUPPURATION OF THE CORNEA; EXCISION OF THE GLOBE AND REMOVAL OF THE NÆVOID TUMOUR; RECOVERY.

(Under the care of Mr. GEORGE LAWSON.)

THE following very interesting and exceptional case occurred in the practice of Mr. Lawson at the Ophthalmic Hospital, Moorfields.

On Nov. 8th, 1870, a little child, aged three years and two months, was brought to the hospital with a great protrusion of the left eye, and evidently suffering considerable pain. The eye was bulged fully half an inch beyond the boundary of the orbit, but the child was still able to close the lids over it. The globe was projected directly forwards, and no tumour could be felt with the finger around any portion of the circumference of the orbit. The cornea was perfectly clear, and the eye otherwise healthy. The mother stated that the eye had begun to protrude about six months previously, but that the bulging had remained almost stationary until ten or twelve days before her application to the hospital, when, without any apparent cause, the protrusion of the eye became rapidly greater, and had since increased daily.

As it was difficult to decide on the nature of the tumour, the child was kept under observation, and ordered to attend regularly as an out-patient.

On November 18th the child was admitted with the mother into the hospital, as the severity of the symptoms had greatly increased. The eye was much more bulged from the orbit, it had lost the protection of the lids, which could no longer be closed over it, and, from the consequent exposure, the cornea was beginning to suppurate, the lower half of it was semi-opaque, and the conjunctiva of the globe was chemosed. The child was evidently in great pain, constantly moaning, and unable to sleep except in short snatches. To relieve the sufferings of the child, and also to obtain a correct knowledge of the growth behind the globe, Mr. Lawson decided to remove the eye. On dividing the optic nerve with the scissors, a copious stream of blood followed, and the tumour within the orbit at once collapsed to nearly one-half of its former size.

On examination, a vascular growth, composed of large veins, with a cellular matrix, was found to occupy the orbit. Drawing the nævoid tissue out of the orbit with a pair of forceps, so as to keep it on the stretch, Mr. Lawson excised the greater portion of it, leaving only a small part of the tumour at the apex of the orbit. The cavity was then plugged with a small piece of sponge soaked in the liquor ferri perchloridi, and a compress to arrest further hæmorrhage was applied over the closed lids with a flannel bandage.

The sudden diminution in the size of the tumour on the division of the optic nerve was due to the tumour having been cut into with the scissors, and the immediate escape of a large quantity of blood which had accumulated in a cavity in the centre of the growth. One of the large veins of which the nævoid tissue was composed had evidently given way, and blood had been effused into the substance of the tumour. This also explains the sudden increase in the size of the growth, which was one of the remarkable symptoms in the history of the case.

The child recovered without a bad symptom, and has since continued well.

WESTMINSTER OPHTHALMIC HOSPITAL

A CASE OF DEATH BY CHLOROFORM.

We have been favored by Mr. Power with the following account, from notes taken by the late house-surgeon, Mr. Greenslade, of a case of death following the inhalation of chloroform in a patient who recently underwent the operation of iridectomy at his hands. We believe that the quantity administered, which was no more than a drachm and a half, is one of the smallest, if not the smallest, recorded fatal dose. It was administered with due skill, and inhaled without any struggling or other unfavorable symptom. The fatal issue, Mr. Power believes, was due to a direct paralysing influence on the heart.

The patient, Thomas R——, was fifty two years of age, and had come up from Devizes for the purpose of having the right eye removed. On examination, it was found that the cornea was ulcerated, the sclerotic was inflamed, the iris dilated, and there was only a slight perception of light. Mr. Power thought that by performing iridectomy after the ulceration (which appeared to be of a rheumatic type) was healed, the man might still recover some vision. Accordingly he was treated with chinchona and small doses of the perchloride of mercury; and, the ulceration having healed in rather less than a fortnight, it was determined in a few days more to perform the operation above mentioned.

The patient walked into the room, and having lain down without assistance, a drachm of chloroform was sprinkled on the inner side of a cone of flannel, and he breathed it without struggling. Mr. Power himself ascertained that the pulse was quite regular and natural; and, after about a minute, he introduced the speculum, and the cone was removed from the face. On seizing the conjunctiva with the forceps some indications of pain were observed, and twenty minims more were thrown into the cone, which was applied only for a second or two, and again removed on the conjunctiva being seized for the second time. The patient now remained quiet, and the operation had been completed without difficulty, when he suddenly began to breathe stertorously, while the lips and face turned blue, and the sterno-mastoids became considerably contracted. He was at once turned on to his left side (according to the suggestion by Mr. Bader, of Guy's Hospital), cold water was dashed in the face, and artificial respiration on Silvester's method at once commenced. The result was for a time satisfactory; he began to breathe again, the livid color left his cheeks, and hopes were entertained that all would soon be right. In a few moments more, however, the livid tint returned, and the veins of the neck and temple became much swollen. Artificial respiration was now maintained by Mr. Power with great steadiness and regularity, the tongue was held forward, and a galvanic apparatus was applied to the neck, the region of the heart, and the abdomen; flannels and vigorous frictions being simultaneously applied to the abdomen and legs. These proceedings were maintained for nearly an hour, in the course of which Dr. Hyde Salter, having kindly come in and auscultated the heart, had pronounced life to be extinct, the heart having absolutely ceased to beat. Artificial respiration was, nevertheless, maintained a short time longer.

UNIVERSITY COLLEGE HOSPITAL.

A CASE OF PERI-CÆCAL ABSCESS.

(Under the care of Sir H. Thompson and Mr. Christopher Heath.)

In a previous number (January 1870) we alluded to the case of a youth, about twenty years of age, in whom Mr. Heath, in the absence of Sir H. Thompson, had opened an abscess which was pointing between the anterior superior spine of the right ilium and the mesial line of the abdomen; and stated that the incision was followed by a copious and forcible stream of offensive pus, the withdrawal of a large shred of sloughing cellular tissue, and finally by an alarming flow of venous blood, which was only arrested by filling with lint soaked in perchloride of iron a large cavity which was found to exist beneath the situation of the incision.

The further progress of this patient was as follows:—During the night following the operation some fæces escaped from the wound. Two days afterwards the plugs of lint were removed, and the cavity was washed out with a solution of carbolic acid (1 in 40), and refilled with fresh plugs soaked in the same preparation. Notwithstanding the passage of a firm motion by the rectum, portions of fæcal matter continued to be discharged through the wound. On the fourth day the patient showed signs of increasing weakness, and complained of frequent faintness. The wound, which still gave passage to fæces, was dressed as before. On the fifth day he felt better. On the sixth the wound gaped widely, and some large sloughs were removed. The cavity presented a red granulating surface, and contained more sloughs. Fæces were passed daily by the rectum as well as by the wound. The cavity was directed to be washed daily with the carbolic solution. By the ninth day it was clear of sloughs, and, when it was not full of fæces, its surface could be seen to consist of granulations. On the eleventh day the patient appeared to be getting weak. He died exhausted on the twenty-second day, the fæcal discharge from the wound having recurred daily to the last.

At the post-mortem examination there was found, in the right iliac fossa, the sac of an abscess which was bounded on the outer side by the iliacus muscle and the iliac bone—the surface of which was bare within two inches from the crest,—on the inner side by the cæcum and some thickened peritoneum, and in front by the abdominal walls. The finger could be passed anteriorly into a sloughy cavity between the bladder and the pubes, and posteriorly between the rectum and the bladder. The pus had penetrated into the subperitoneal tissue, but had been arrested in its course towards the perineum by the recto-vesical fascia. The whole sac of the abscess and the surrounding parts were removed *en masse*, but a careful examination failed to discover the source of the hæmorrhage. In the inner wall of the abscess were situated two large openings which communicated with the cæcum, and through which prolapsed the mucous membrane of the gut, of a dark-red color, each portion presenting very much the appearance of a prolapsus ani. On opening the intestine, no scars or other traces of recent ulceration could be seen. Beyond these openings the gut was contracted, but healthy. The small intestine was healthy.

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ST. BARTHOLOMEW'S HOSPITAL.

A CASE OF STRANGULATED ENTERO-EPIPLOCELE; OPERATION; RECOVERY.

(Under the care of Mr. Holden.)

For the notes of this case we are indebted to Mr. Hogg, house-surgeon.

Eliza B—— was admitted with a strangulated femoral hernia on the left side, of six days' duration, with stercoraceous vomiting, which had existed ever since the time at which strangulation took place. She had been ruptured eighteen years, but had never worn a truss. The hernia appeared to have been partially strangulated three times in the last three years, but she had never found it necessary to call in a doctor, as it had always got well again after a few days' rest in bed. She had been taken with stercoraceous vomiting and pain in the rupture six days before admission, and had gone to bed, hoping to get well, as she had done on previous occasions; but she had become gradually worse, the sickness and pain increasing, till, the day before admission, she called in a doctor, who, on the following morning, advised her to come immediately to the hospital.

She was found to be in a state of great collapse, and there was considerable lividity of the skin over the tumour.

The operation was performed an hour after admission. On opening the sac, it was found to contain a large black piece of omentum, and behind this a knuckle of dark-colored intestine. In consequence of the large size of the piece of omentum, it was found necessary to make a supplemental incision at right angles to, and to the outer side of, the ordinary one. The intestine was returned into the abdomen, and, the piece of omentum being cut off, the stump was left in the wound. The patient was ordered beef-tea and milk diet, a poultice to the wound, and twenty-five drops of solution of opium to be taken nightly.

On the day following the operation the patient vomited; she was ordered two ounces of wine and some ice. The vomiting continued to a small extent on the second day, and four ounces of brandy were substituted for the wine. On the seventh day an injection of olive oil and barley-water was followed by an evacuation. On the tenth day the sickness returned, and brandy, ice, lime-water, and soda-water were ordered; also a pill containing three grains of calomel and one and a half of opium, to be taken at night. On the following day the patient was well enough to be put on fish diet. On the sixteenth day water dressings were substituted for the poultice, and the nightly dose of opium was discontinued. The patient recovered without any further symptoms, except the formation, in the line of the incision, of a small abscess, which discharged itself spontaneously.

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ST. GEORGE'S HOSPITAL.

A CASE OF PERFORATING ULCER OF THE DUODENUM.

(Under the care of Dr. Wadham.)

The following case, for which we are indebted to Dr. Cavafy, the medical registrar, is interesting on account of the difficulties which surrounded the diagnosis. The patient presents himself suffering severe abdominal pain: in the first place, it is discovered that a hernia has descended, which he has been unable to reduce; and, secondly, it is found that his system is contaminated with lead. The post-mortem reveals a perforating ulcer of the duodenum.

Henry H——, aged fifty-six, a painter, applied at the hospital on the morning of Feb. 3rd, complaining of violent abdominal pain, which had come on suddenly a short time before. He was the subject of an old hernia, which had come down, and which he was unable to return. Reduction was easily effected, but, as the pain continued, he was ordered a dose of castor oil and laudanum and sent to bed. When seen by Dr. Wadham, at about 2 P.M., he was suffering intense agony, twisting and writhing about on the bed from the violence of the pain. Pressure seemed to give him slight relief. The pulse was 120 and of fair strength, the tongue moist and tolerably clean, and the skin cool. The bowels had not acted for four days. As the patient was a painter, with a well-marked blue line on the gums, and gave a history of three previous attacks of severe abdominal pain, lead colic was diagnosed, and he was ordered three grains of calomel with one grain of opium, and a draught containing a drachm of sulphate of magnesia every four hours. About half an hour later he vomited, and when seen in the evening by Dr. Jones the pain was as severe as ever. As he had passed no motion since admission, a copious oil enema was administered; this was followed by two stools; but at about 11 P.M. he vomited several times. At midnight he was seen by the house-surgeon, who found the pain was very severe and increased by pressure. A morphia draught was given, but without relief; and the patient died at 2.45 A.M., fourteen hours after admission.

The post-mortem was made by Dr. Whipham thirty-eight hours after death. Evidence of recent peritonitis was found, the small intestines being matted together by soft lymph. On the anterior surface of the first portion of the duodenum, just beyond the pylorus, there was a small perforation of the size of a pea, with clearly cut edges; this was caused by a small ulcer, the edges of which were not thickened. The mucous and muscular coats were only slightly more destroyed than the serous. No other ulcer was found. The kidneys were granular; the cortex diminished; the capsules adherent.

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GUY'S HOSPITAL.

NECROSIS OF THE LOWER JAW; REMOVAL OF THE WHOLE OF THE ASCENDING AND PART OF THE HORIZONTAL RAMUS; RECOVERY, WITH GOOD MOVEMENT.

(Under the care of Mr. THOMAS BRYANT.)

THE following notes are by Mr. R. S. Mutch:—

Sarah B——, aged five years, was admitted with a swelling over the angle of the left inferior maxilla. The ascending and horizontal rami were both somewhat thickened. In the part of the cheek covering the angle of the jaw was a sinus leading to dead bone. Motion was only slightly impaired. It was found that all the temporary teeth were present in the upper jaw, and on the right side of the lower jaw; but on the left side of the latter were seen two incisors, and the canine, which was slightly everted. Behind this was a space corresponding to the two temporary molars: beyond the space stood the first permanent molar, apparently fully cut in front; and to the outer side of it lay exposed a portion of apparently dead bone. The soft parts on this side were somewhat thickened. The child appeared in other respects to be in good health.

The history was to the effect that nearly a year and a half ago the patient had been confined to her bed for two weeks with a fever, in the course of which a swelling had made its appearance on the left side of the face, and had broken within the mouth. Since then some teeth had come away. Nine weeks previously she had become an out-patient; and while she was attending the hospital in that capacity a sinus had formed in the cheek, and Mr. Bryant had removed a portion of dead bone, together with one of the permanent teeth.

The patient having been placed under chloroform, Mr. Bryant attempted to remove the exposed piece of bone, but it was too firmly fixed. He then carried an incision along the outer side of the horizontal ramus, one inch forwards from the sinus. After several attempts, in which some small pieces of bone broke away, he succeeded in removing the whole of the ascending ramus, including the condyle, and part of the horizontal ramus. No constitutional disturbance followed the operation. She was discharged in eight days, much relieved, but with the sinus still communicating with the mouth.

When seen again, from two to three months later, she was able to move the jaw quite naturally.

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METROPOLITAN FREE HOSPITAL.

A CASE OF MALIGNANT DISEASE OF THE OVARIES; DEATH AFTER TAPPING.

(Under the care of Dr. C. DRYSDALE and Mr. SHEFFIELD.)

A WOMAN, aged forty-four, became an out-patient of the hospital at the latter end of November last. She said that in the month of April she had pains and soreness all over the abdomen, but did not remark any swelling until August, when she suffered from great pain in the left groin, and noticed a swelling in the belly at that part, about the size of an egg. This swelling increased rapidly until the whole of the abdomen became enlarged as far as the chest. The menstrual flow, which had always been quite regular except during pregnancy (she had had nine children), had stopped in March, and had not returned. She had been a delicate woman, and fourteen years before had had rheumatic fever. Her father was alive, and her mother had died at the age of sixty-three. She had five brothers and three sisters alive.

When examined by Dr. C. Drysdale she had a pulse of 136, and considerable dyspnœa. He found a globular distension of the abdomen, extending from the ensiform cartilage to the os pubis, and everywhere yielding the sensation of fluctuation, even in the loins, with dulness on percussion throughout, except for about four inches below the ensiform cartilage. The dulness remained in the left and right umbilical regions, even when the patient turned on to either side. On pressure being made on the left iliac region, a hard tumour was easily felt. The uterine sound could not be passed, and the uterus appeared as if in a state of complete retroflexion; it was small and quite unconnected with the tumour. The urine was scanty, full of urates, and contained no albumen. The patient was very cachectic and emaciated. It was presumed that there existed an ovarian tumour, complicated with ascites. When the patient was admitted it was decided first to tap the abdomen, and to take further steps if necessary.

On December 18th Mr Sheffield tapped the abdomen about two inches below the umbilicus, and drew off about six quarts of ascitic fluid. As the fluid escaped, the existence of a large tumour, chiefly located in the left iliac region, became manifest to the eye. It extended over to the right iliac region. The patient was in such a low state that the idea of operating was at once abandoned, especially as it was suggested that the tumour might be of a malignant nature. The patient gradually became more emaciated, and died on December 22nd, with symptoms of peritonitis.

After death both ovaries were found to be the seat of a scirrhous tumour; that of the left side being of the size of the head of an adult, and that of the right of the size of a child's head. Cancer cells were well seen in the juice of the tumours. The uterus appeared to be healthy.

Provincial Hospital Reports.

NEWCASTLE-UPON-TYNE INFIRMARY.

A CASE OF INJURY OF THE FEMORAL ARTERY.

(Under the care of Dr. HEATH.)

WITH reference to this case, Dr. Page, the house-surgeon, to whose notes we are indebted for the following account, observes that it would seem that the artery had been so injured by pressure against the bone, that either rupture of its internal coats ensued, or the vessel was completely divided; and that, whichever explanation be correct, it is remarkable, considering the nature of the accident, that the vein should have escaped uninjured; and still more interesting that so large an artery should be thus obliterated without the formation of an aneurism.

Peter W——, an Irish laborer, twenty-three years of age, was admitted, in a state of collapse, a few hours after the occurrence of the following accident. He had been engaged in pushing a railway wagon along the line, when another heavily-laden wagon moving slowly, caught him from behind, so as to jam him between the opposing buffers. The man fainted, and upon recovering his senses placed his hand upon his left groin, and discovered a large swelling.

On admission, Scarpa's triangle on the left side was occupied by a tense dark-colored tumour, upon the summit of which, immediately above the brim of the pelvis, and over the course of the femoral artery, was a small wound, extending, however, no deeper than the skin. Around this wound the skin was of a dark-purple color. The left limb was one degree lower in temperature than the right, and measured, over the most prominent part of the tumour, three inches and a half more than over the corresponding part of the right thigh. On the patient rallying, which he did very slowly, no pulsation could be detected either in the tumour or in the arteries below.

Two days later the left limb was found to pit on pressure from the ankle to above the knee. The patient had been kept under the influence of opium and fed upon milk diet. Eight days after admission it was noted that there had been a gradual improvement; the tumour had shrunk, and the œdema of the limb was subsiding. The darkened portion of skin around the wound gave way at its inferior margin, allowing some thin blood to escape. A Lister's abdominal tourniquet was applied over the common iliac, and left in a relaxed condition, ready to be tightened should any bleeding occur. On the eleventh day it was reported that thin blood and small clots had continued to escape. A piece of sloughing skin, of the size of a half-crown, surrounding the wound was removed, and a quantity of coagulated blood was turned out from a well-defined cavity about the size of a small orange. Upon the floor of this cavity, immediately above the brim of the pelvis, the external iliac artery could be felt pulsating powerfully, but below this point no pulsation could be felt in any of the vessels. In six weeks the cavity was rapidly filling up. Towards the end of the eighth week the wound had healed. The patient was carefully examined, but no pulsation could be felt in the left femoral, popliteal, or tibial arteries, though those of the right side pulsated distinctly. The patient was discharged well.

A woman upon whom Dr. Heath had operated for urethro-vaginal fistula has recently left the infirmary completely relieved. The operation was performed in the usual way, the pared edges of a rather extensive transverse fissure being retained in contact by means of silver-wire sutures only. Mr. B. Holt's winged catheter was introduced and retained in the bladder for eight days with marked benefit.

MATER MISERICORDIÆ HOSPITAL, DUBLIN.

TRAUMATIC TETANUS; TREATMENT BY CHLORAL HYDRATE.

(Under the care of Mr. Tyrrell.)

Of late the chloral hydrate has been frequently used in the treatment of tetanus, and with varying success. In the previous number of The Lancet, an unsuccessful case is reported by Mr. Eager, of the Royal Surrey County Hospital, Guildford. In the following case, as in the one under the care of Mr. Eager, the administration of the chloral hydrate did not save the patient's life, but it certainly rendered the progress of the disease less painful by procuring sleep.

The following notes are by Mr. Robert Curran, resident pupil:—

John G——, aged twenty-three, was admitted into hospital suffering from severe injuries of the face and eyes, caused by an explosion of gunpowder. The accident occurred on the day of his admission. His face was blackened by the powder; there was a slight contused wound on the right side of the nose, and his eyelids were much swollen and very red. On elevating the lids the corneæ appeared, from the surrounding chemosis, to be depressed, and he could not distinguish the light of a candle brought close to his face. On the third day both corneæ were perfectly opaque, and in a state of slough; the swelling of the lids was less, and the wound of the nose had commenced to heal. On the seventh day the patient had a rigor, and complained of stiffness of the neck and jaws, and could not well open his mouth; later in the day he was seized with a spasm which lasted a few seconds and during which his teeth were firmly clenched.

His pulse was 70, full and strong; there was no difficulty in deglutition, and he drank a large quantity of beef-tea, milk, and wine. He was ordered ten grains of the chloral hydrate every third hour. After the second draught he slept soundly for two hours, and expressed himself as much better, and freer from pain than he had been since his admission.

Eighth day.—Has had a good night's rest; has taken eight draughts and a large quantity of beef-tea and wine; pulse 74, strong; no spasms during the night; says he feels better.

Ninth day.—Has had a bad night; did not sleep. Did not take the chloral, as he thought the coldness of the draught brought on the spasms, which were frequent. Pulse 76, but not so strong as yesterday; stiffness of the neck and jaws much increased; head slightly bent backwards. Ordered thirty grains of the chloral in hot whiskey-and-water, to be repeated in an hour if requisite. In twelve minutes after taking the draught he fell into a calm sleep for two hours. On awaking he asked for a smoke, which was of course allowed. During the day he had a quart of beef-tea strengthened with Liebig's extract, and ten ounces of brandy. At 2.30 p.m. he took a second draught containing thirty grains of chloral, and in a few minutes was asleep, and slept soundly for an hour. Pulse 74 and strong. At 7 p.m. he had a draught with forty grains of chloral, and slept for two hours after taking it. At midnight a draught similar to the last was given, and he now for the first time complained of some difficulty in swallowing.

Tenth day.—3 a.m.: The chloral was repeated.

—10 A.M.: His jaws were very stiff; he had great difficulty in opening the mouth, and pain and difficulty in swallowing. It was found necessary to introduce a catheter between his teeth, and allow him to drink through it. Since yesterday morning he has taken one pint of beef-tea, eight ounces of wine, and three ounces of brandy.—10.30 A.M.: The draught was repeated, but no sleep was produced. As the spasms were increasing, another draught was attempted to be given, but he was not able to swallow more than one-third of it. A solution of chloral was now prepared, containing sixty grains to the drachm, and one drachm of the solution in a little beef-tea was swallowed at eleven o'clock. He immediately fell into a quiet sleep which lasted for an hour. During the day he refused all nourishment by the mouth, as every attempt to swallow brought on severe spasms. Pulse 80, weak.—3 P.M.: Ordered an enema containing two eggs, one ounce of brandy, two drachms of chloral, in six ounces of beef-tea. The injection was retained. It gave him relief from pain, but did not produce sleep.—9 P.M.: The enema repeated. Slept for one hour. Pulse 76, stronger. —Midnight: Enema repeated. Slept on and off till morning.

Eleventh day.—Power of swallowing entirely gone. Pulse 78, very weak. During the day he became very weak, and he died quietly, without spasm, at 7 P.M. During the day nutritive enemata were given, but not retained. He took 770 grains of chloral in eleven days.

DEVON AND EXETER HOSPITAL.

EXCISION OF SUPERIOR MAXILLA.

(Under the care of Mr. ARTHUR J. CUMMING.)

THE following case is reported by Mr. Edw. J. Domville, house-pupil:—

Mary Ann C——, who appeared on admission to be healthy in every other respect, complained of considerable pain and inconvenience arising from a tumour, which was situated on the right side of the face, and had been gradually increasing in size from the time she first noticed it, six months previously. It occasioned considerable deformity, was apparently about the size of an ordinary hen's egg, elastic to the touch and did not involve the skin. The growth apparently took its origin from the antrum, and extended thence to the orbital and palatine processes, having destroyed and protruded through part of the floor of the orbit.

Chloroform having been administered by means of a tubular inhaler applied to one nostril, Mr. Cumming carried his incision from below the inner angle of the orbit along the side of the nose, round the ala, and through the median line of the lip. The flap thus obtained was dissected back. The condition of the orbit having been examined, the malar end of the zygoma, the external angle of the orbit, the internal angle, and the arch of the palate were successively divided with straight forceps. The loosened mass was drawn forward, and the soft parts by which it remained attached were divided with a knife; it comprised the whole of the superior maxilla and the tumour, which was undoubtedly malignant, the malar bone, and the floor of the orbit. Some of the adjoining parts being observed to be invaded by the morbid growth, they were subjected to the actual cautery. The hæmorrhage, which was inconsiderable, and proceeded mainly from small branches of the facial artery, was immediately arrested by the cautery; only one small vessel requiring ligature. The facial wound was brought together by wire sutures, and the incision in the lip by two pins and twisted sutures. The cavity was filled up with dry lint, and the patient was ordered ice to suck; she bore the operation very well, only complaining of a slight headache.

On the following day there was considerable discharge from the wounded surface, and the patient was directed to make use of a chlorate-of-potash gargle. Her diet consisted of nourishing liquids.

Four days after the operation the external wound had healed, but strapping was applied as a support. On the thirty-sixth day she became an out-patient.

The ultimate result of this formidable operation was very favorable. There ensued no displacement of the eye, and remarkably little facial disfigurement.

Medical Societies.

APRIL—MAY.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

DR. BURROWS, F.R.S., President, in the Chair.

ON THE DURATION OF PHTHISIS PULMONALIS, AND ON CERTAIN CONDITIONS WHICH INFLUENCE IT.

BY C. THEODORE WILLIAMS, M.D. OXON.,

Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

THE author commences by stating that he uses the term "phthisis" in a broad sense, to signify consuming pulmonary disease, attended by a well-known group of symptoms; and includes under it, beside tubercle, all states of lung which tend to excavation and caseation.

The object of the present paper is to give some account of a thousand cases of phthisis selected from the private practice of Dr. Williams and the author, and to deduce the amount of influence which the conditions of age, sex, family, predisposition, and origin exercised on the duration of the malady. The patients belonged chiefly to the upper and middle classes. The cases have been taken from the records of those who first consulted Dr. Williams between 1842 and 1864, a period of twenty-two years; the ground of selection being that each case has been at least one year under observation.

Sex.—The author, after explaining how the cases were recorded and exhibiting certain tables, states that 625 of the 1000 were males and 375 females.

Age.—Taking the sexes collectively, 41 per cent. were attacked between twenty and thirty, 25 per cent. between thirty and forty, 19½ per cent. under twenty, and 13¾ above forty. Considerable difference was found to exist between the two sexes as to the time of attack. Between twenty and thirty, the most common period of attack for both sexes, about 7 per cent. more females were attacked than males; and, again, between ten and twenty, 11¾ per cent. more. On the other hand, after thirty, the reverse was the case. Between thirty and forty, the males exceeded the females by 11½ per cent.; and above forty, by 6 per cent. The average age when attacked was, for the males, twenty-nine years and a half; for the females, twenty-six years.

Family predisposition.—This term is substituted for "hereditary predisposition," in order to include brothers and sisters and first cousins in addition to those of the preceding generation; the principle being to include as instances of disease in a family all near relations derivable from a common stock. Family predisposition was traced in 48 per cent. of the patients: in 43 per cent. of the males, and 57 per cent. of the females. In the particulars which are given it is noted that nearly half of the cases had only brothers and sisters affected.

Origin and first symptoms.—In 315 cases, phthisis originated in, or followed closely after, the following diseases—vis., pleurisy and pleuro-pneumonia (143), bronchitis (118), asthma, scrofulous abscesses, fistula, whooping-cough, croup, scarlatina, measles, continued fevers, peritonitis, malformations of the chest, and injuries: 26½ per cent. of the whole number of cases were traced to inflammatory attacks (pleurisy, pleuro-pneumonia, and bronchitis); and of these patients, 14·2 per cent. were free from any suspicion of family predisposition. The origin of phthisis from inflammatory attacks, is then dwelt on, and the symptoms indicating the conversion of pleuro-pneumonia and of bronchitis into phthisis sketched, and the more general recognition by medical men of their common occurrence among both upper and lower classes is strongly urged.

Hæmoptysis was present in 57 per cent. of the patients.

State of lungs.—In describing the condition of the lungs, Dr. Williams explains why he adopts the classification of *stages*, and what extent of disease each stage is intended to include. In none of the cases is the evidence of physical signs alone accepted: in all it is amply confirmed by clinical symptoms. Two-thirds of the patients were in the first stage at first visit, 18 per cent. in the second, and 14½ per cent. in the third; 14 cases presenting the signs of other diseases on which those of consumption shortly supervened. One hundred and ninety-eight patients are ascertained to have died; the mortality of those who came in the third stage being about double that of those who came in the first. The average duration of life among the 198 who died was seven years and eight months and three quarters; 21 of whom lived from fifteen to twenty-eight years after first attack. Among the 802 living patients, the average is at present eight years and two months and a quarter: 246 have lived more than ten years, 65 more than twenty, 2 more than thirty, and 1 more than forty years.

An account of the present state of these patients is then given, and it is shown that 72 per cent. have regained their health sufficiently to follow their occupations; 28 per cent. are still invalids.

Dr. Williams then discusses the views of Louis, Bayle, Laennec, Andral, Fuller, Pollock, and other authorities as to the duration of phthisis, and attributes the long duration of the present cases to—(1) the early detection of the disease; (2) the perseverance with which the patients carried out the various healing measures recommended to them, whether medicinal, hygienic, or climatic. The influence of age and sex on duration are next considered; and on these points the author's statistics show that—(1) the later the time of attack the longer was the duration, this being more marked among the males than among the females; (2) that females are, on an average, attacked four years earlier than males; and (3) that among them the duration of the disease is one year and a half shorter, and the average age reached is five years and a half less than among males.

The conclusions as to the effect of family predisposition on duration are (1) that it does not directly limit the duration of the disease; (2) that it precipitates the onset of the disease, thus shortening the duration of life; (3) that it affects females more than males.

The influence of the inflammatory origin on the duration of phthisis is next considered, and the author concludes that cases arising from pleurisy or pleuro-pneumonia enjoy a longer duration than the average, such extension amounting to at least a year and a half or two years.

Dr. Powell thought it was well to have chosen the widest meaning for the word phthisis, as it would have been difficult to separate into groups. Nevertheless, it would have been well to separate a certain number; thus, it would be well to know the proportion of pneumonic phthisis. He thought recoveries were often of this class. The knowledge that people might live so long with cheesy matter in their lungs, and with no accession of miliary tubercle, was valuable. It contradicted the views of Waldenburg and others, and showed there must be something more than a caseous mass—specificity, hereditary, or something. Family predisposition was traced in nearly one half of the cases recorded, but in many instances those affected were brothers or sisters, which would rather show common exposure as influences.

Dr. Marcet thought it difficult to say if bronchitis passed into phthisis; the physical signs were much alike, especially in capillary bronchitis. The numbers of those who got well were remarkable; perhaps it was due to the elimination of acute cases. He thought if their digestion was kept up, patients generally did well.

Dr. C. J. B. Williams said: As almost all the cases which have been the subject of analysis in this paper occurred in my practice, and were observed and noted by myself, I may be expected to give any required explanation of the facts for which I am answerable. But even before the Society, I must express my obligation to my son for the immense trouble which he has taken in arranging and analysing the particulars of the cases, and obtaining the exact results of numerical calculations. As they existed in my note-books, they formed an enormous mass—almost overwhelming by its quantity. All this experience had, indeed, led me to general inferences, which are correct; but through the tabulations and calculations which my son has made, I have gained ideas more precise, and of greater extent, than those which I had before from my own impressions. For example, with regard to the duration of life in phthisis, I knew that the average of my cases far exceeded the term of two years, assigned as the usual average by Laennec and Louis; and, on general impression, I had fixed it at five years. But, by actual counting, it is found to reach to nearly eight years in the 198 cases that have ended in death, and to above eight years in the 802 still living, and with prospect of further increase. The influence of age and sex on the duration of life is also in conformity with previous impressions—the disease being more rapid in the young and in females, and slower in those older and in males. The effects of family tendency came out by calculation somewhat differently from what was expected. It accelerates the onset of the attack, but does not shorten its duration; it seems, therefore, to render the body more prone to the disease, but not to render the disease more intense. The term "family" predisposition has been preferred to hereditary, in order to include the very common case of several brothers or sisters in succession being affected, even where the disease has not occurred in either parent or progenitor. Dr. Powell has suggested, (as did also the author, in the paper) that this might arise from members of the same family being exposed to similar external causes; but I have known several instances in which, after one or two of a family have died, the others have been purposely removed from home, and all circumstances changed, and yet the disease has shown itself, proving that the cause is constitutional and intrinsic. Some similar influence is required, also, to make acute inflammation terminate in phthisis. The tables show that 26½ per cent. of the cases originated in inflammation; and this is quite in accordance with my general experience. It has now become the fashion to recognise inflammation as a common cause of consumption, and this, forsooth, because this notion has been strongly advocated by some German physicians; but I do not see why we are to be led by the Germans in this matter. For the last forty years I have consistently argued for the inflammatory origin of many forms of phthisis. I first derived this notion from my eminent and revered teacher, Professor Allison, of Edinburgh; and it so happened that some of the cases which he published in corroboration of his views were my patients, under his supervision, at the New Town Dispensary. But this was, also, the common opinion before the time of Laennec, and was maintained by Broussais, Andral, and Cruveilhier, in opposition to Laennec. But inflammation alone does not suffice to produce phthisical disease of the lung. Acute inflammation may attack the lung in any intensity, and yet pass away without leaving any trace or tendency to consumption. It is where it is rendered persistent or chronic by repeated attacks or neglect, or where there is a state of constitution called scrofulous, or deteriorated by unhealthy influences which degrade nutrition, that the products of inflammation tend to caseation and excavation, and end in consumption. What this consumptive or tuberculous constitution is, there is not time, nor is there the occasion, to discuss; and I would only say that I believe it to be intimately connected with the lymphatic system and the abundant production of leucocytes or pale corpuscles—those wonderful agents and representatives of the plastic process. Dr. Marcet remarked that it would be difficult to distinguish when bronchitis passes into phthisis; but I have found distinctive signs in the supervention of patches of dulness on percussion, together with tubular sounds and coarser crepitus, generally near the summit or root of the lung; and there are, also, persistently increased temperature and emaciation. The forms of bronchitis most apt to pass into phthisis are those attended with plastic or purulent expectoration, indicating a deep-seated inflammation. I must not omit to notice the ground of selection of these cases —that they had been under my observation for at least one year, and that, although such selection obviously supplies more reliable and satisfactory results with regard to the history of the disease and its treatment, it excludes the more acute cases which terminated fatally within that period. The proportion of such cases is, however, very small, not amounting to 5 per cent. The selected cases, therefore, represent chronic phthisis, and those of the acute disease which have been arrested and rendered chronic by treatment. In conclusion, I would express my conviction, derived from a very large experience, that much may be done to save and prolong life in consumptive disease, mainly by subduing and warding off inflammation and irritation, and by sustaining the vital powers by every kind of means, medical and hygienic; but, to be successful, this treatment must be unremittingly persevered in, not for weeks or months only, but for years, and sometimes even for the whole lifetime.

Dr. Andrew Clark referred to the gratifying spectacle of father and son at work on the same problems. Their work was a real and valuable contribution to the history of phthisis, but only of chronic phthisical disease. Even then there was one defect—there was no reference to the habits of the patient. From a scientific point of view there were different kinds of phthisis, but this division had not been recognised or followed. He thought phthisis arising from pleuritic disease prolonged, not so if it arose from inflammatory deposits, especially if pneumonic.

Dr. Theodore Williams, in reply thanked the Fellows of the Society for the kind reception they had given to his paper and the accompaning tables, which, from their statistical nature, he was afraid would have proved wearisome. He would suggest that, if the paper were honored with a place in the Transactions, it might be rendered more lucid by extracts from the tables, which were in themselves too lengthy for publication. In reply to Dr. Powell as to the number of cases of tuberculosis included in the thousand cases, he stated that it was very difficult, and often impossible, to determine when tuberculosis supervened in a case of caseous phthisis. He differed from Dr. Marcet as to the difficulty of diagnosing when a case of bronchitis had become one of phthisis, but agreed with him that, in consumptive cases, improvement in general health, as a rule, far preceded improvement in physical signs. With reference to the varieties of phthisis adverted to by Dr. Andrew Clark, Dr. Theodore Williams explained that he was opposed to drawing a hard-and-fast line between them, as he considered that they merged imperceptibly into one another, and he had preferred, until more facts had been accumulated, to class the cases according to their origin, whether local, as from bronchitis, or pleuro-pneumonic or constitutional, as in ordinary phthisis. In expressing his gratification at the able criticisms of Dr. Clark, and his appreciation of the amount of labor involved in the paper, the author said it was only due to Dr. C. J. B. Williams to state that the cases were most carefully kept, and that the work of arranging for statistics had thus been rendered comparatively easy. Dr. Theodore Williams hoped to continue his researches, and in time to elucidate other points of interest with reference to the duration of phthisis.

ON THE PROBABLE CAUSE OF THE POST-MORTEM MUSCULAR CONTRACTIONS IN CHOLERA, AND ON THE PHILOSOPHICAL TREATMENT OF THAT DISEASE.

BY JOHN G. FRENCH, F.R.C.S.,

Surgeon to the St. James's Infirmary.

The author believes that a physical law of nature, discovered by Dr. Marshall Hall, accounts for the post-mortem contractions in some cholera patients. He also thinks that Dr. Hall's study of the subject of hibernation, in which he discovers abnormal physiological conditions for prolonging life without food, suggests an analogy to the abnormal conditions in cholera, where these sustain life during the elimination of a mortal poison. Appropriate treatment results from the premises as a necessary consequence.

SUGGESTIONS IN SUPPORT OF A RATIONAL SYSTEM OF THERAPEUTICS.

BY E. MERYON, M.D., F.R.C.P.

In a former paper Dr. Meryon showed that every ganglionic centre of the sympathetic system of nerves has three distinct elements, over and above the ganglionic cells, and that each element or nerve-cell has its own special attribute,—the sensory fibres, to impart the vital sense of an organ, affecting its histological tissues, without operating immediately on its blood-vessels; the motor fibres, to incite vascular action and secretion in response to the vital sense; and the grey fibres of Remak, to restrain and regulate the stream of nutriment conveyed by the arterioles into the cell territory for secretion or for assimilation.

In the present paper the above anatomical and physiological data are utilised for the purpose of interpreting the operation of many medicinal agents.

For instance, the fact shown by M. Claude Bernard, that sections of the fibres of Remak induces increased vascularity and elevation of temperature in the parts to which those sympathetic nerves are supplied, has its pathological counterpart in inflammation, in which, owing to the loss of the inhibitory influence of the nerve-fibres of Remak, blood-corpuscles penetrate into those minute arterioles through which blood-plasma only should be propelled. In the spurred rye (ergota), we have an agent which produces the opposite effect. By increasing the inhibitory influence of the sympathetic fibres, it diminishes the calibre of vessels, shuts out blood-corpuscles from the capillaries, and even the blood-plasma itself, and so restrains many forms of hæmorrhage.

Dr. Meryon then goes on to show that, just as the localised ganglionic centres of innervation are suggestive of independent action, and localised, accelerated, or retarded circulation is an obvious indication that the vascular function of each individual gland is regulated by such ganglionic centre, so have we medical agents which localise their power on special parts, either by exciting or restraining their functions.

This proposition is illustrated by showing the manner in which drugs having antagonistic actions exert their influence on the different individual organs.

Seeing that most pathological conditions are but extensions or exaggerations of physiological actions, and the effects of derangement of the operations of the vaso-motor nerves; seeing, moreover, that we have therapeutical agents which stimulate, or assist, or supplement the attributes of the vaso-motor nerves, on which the healthy functions of all organs depend, Dr. Meryon concludes that in the knowledge and due appreciation of such aids we have the foundation of a rational and scientific system of therapeutics.

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MEDICAL SOCIETY OF LONDON.

MR. GAY, President, in the Chair.

DR. KELBURN KING, of Hull, read a report of the case of C. E——, aged twenty-eight years, who had for three months suffered from a tumour growing in the throat. The symptoms were chiefly difficulty in swallowing, speaking, and breathing. The tumour, covered by mucous membrane, was felt in the left of the soft palate as a hard mass, isolated from the nasal cavity, and bounded externally by the ascending ramus of the maxilla. Its base was broad, and passed outward and backwards behind the jaw, where it could be felt externally. The symptoms becoming urgent, he was admitted into the Hull Infirmary, and the tumour was removed by Dr. King. First, as a precaution against hæmorrhage, a ligature was placed loosely on the common carotid artery; the face was then laid open by an incision from the angle of the mouth to the jaw, masseter muscle and ramus of jaw being both divided. Some difficulty arose from the slipping of the tumour down upon the glottis, and so threatening suffocation; but Dr. King was able to hook it up with his fingers, and so removed it through the division made in the inferior maxilla. At the close of the operation there was free hæmorrhage, which was controlled by tightening the ligature on the carotid. The ligature broke at first, but this being remedied the hæmorrhage ceased. The man for some time progressed favorably; but there were cases of erysipelas in the hospital, and he unfortunately caught this disease, and died of it.

Dr. Morell Mackenzie inquired whether the tumour could not have been removed by the mouth by means of the écraseur.

Dr. King said that he was anxious to remove the whole of the tumour, and, owing to its very broad base, he did not think he could have done this with an écraseur.

Dr. Rogers agreed with the importance of removing *the whole* of these tumours.

The President was one who did not fear hæmorrhage in these cases.

CLINICAL EVENING.

Several communications of interest were brought under the notice of the Fellows during the evening.

I. OBSTRUCTIONS IN THE EUSTACHIAN TUBE.

Dr. Peter Allen read a short paper, in which he described the methods most recently devised for overcoming obstructions in the Eustachian tube, especially such as result from catarrh, and also for inflating the tympanum, with the latest improvements made upon the instruments in use for these purposes. The subject was introduced by a brief sketch of the functions of the parts intended to be influenced, the different methods hitherto adopted, and their relative value. The method particularly dwelt upon, for its high practical value, simplicity, and general efficiency, was that named after its originator, the "Politzer method," which may be shortly described as follows:—The surgeon places the tube within either of the patient's nostrils, or, with Dr. Allen's most recently improved contrivance, simply presses the nasal pad gently and firmly against them. The patient then swallows, by degrees, a small quantity of water previously taken into the mouth; and the surgeon, at each successive act of deglutition, compresses the air-bag held in his own right hand. Currents of air are thus repeatedly sent into the naso-pharyngeal cavities, driving warm air into the tympanum through the Eustachian tubes, and overcoming at once any moderate degree of obstruction in the latter. The modifications of this appliance, introduced by Dr. Allen, consist of an interior valve, enabling the acts of inflation to be repeated as often as desired, without the necessity of removing the instrument from its position; and also of the double pad placed against the nostrils of the patient thus dispensing with the rather disagreeable and troublesome procedure of inserting the tube into the nostril. Even young children do not cry, nor are other persons frightened, at this simple and easy mode of managing inflation. It causes no pain or distress, and the results are often at once so happy as to astonish the patient.

Personal testimony was borne by one of the Fellows present to the immediate relief afforded him, when suffering from catarrhal deafness, by Dr. Allen's use of the described apparatus.

II. TRANSFUSION OF BLOOD.

Dr. Richardson said that for the last twenty years he had been trying to get satisfactory instruments for the performance of this operation, and he had now obtained what he wanted. Transfusion was one of the most simple or most troublesome operations, according as details were perfect or imperfect. These details had reference to the needle, the knife, and the passage of fluid into the veins. As to the needle, he believed he had obtained a satisfactory one. It was curved, probe-pointed, and with an opening in the under side at the top, curved so that when introduced into the vein, if the end was held down, the apex applied itself to the upper wall of the vein, whilst the under side of the needle was free, and allowed the blood to escape. The straight needle comes in contact with the vein, so that the latter blocks the opening for the escape of blood. As to the knife, it should be one to enter the vein at once, having a small blade with a cutting edge along the entire of one side, and only for about one-eighth of an inch on the other, so that the vein might be punctured at once and the needle pushed in so as to cut the upper wall of the vein and the skin together, and so that the vein should not be laid bare, for then it rolls uncomfortably. As to the passage of fluid, all syringes were bad. No force is really required. The mere matter of elevation of the vessel containing the blood above the patient is sufficient. Dr. Richardson then described a vessel he had constructed. It is constricted at the base and then widened out gradually to the top. At the constricted part a wet valve is formed by a floating ball when the vessel contains fluid and this fluid gets low in the vessel. From the lowest part of the vessel is an arm attached to a tube, and this tube is connected with the needle, the fluid from the vessel finding its way along the tube to the needle. In transfusion it was only necessary to fill the vessel and elevate it above the level of the body when the needle was introduced into the vein. Dr. Richardson entered into considerable detail as to the various fluids that might be injected, and the conditions of disease in which these might be used, and mentioned that he had tried without result to find some substance that we could use to feed by the veins; but he was now taking blood and manufacturing from it a blood-powder, which, on the addition of water to it, produces a fluid having all the characters of blood, and he hoped soon to get a "blood-powder" that might be very usefully employed in transfusion.

A very brief discussion took place in reference to the utility of transfusion in different diseases.

III. STRANGULATION OF INTESTINE BY A SOLITARY BAND.

A case of great surgical interest was related by the President. It was that of a man in whom strangulation was reduced by a process of kneading. The man was twenty-seven years of age, and phthisical. For two years he had suffered from sudden attacks now and again of pain to the right of the umbilicus, vomiting, and intestinal obstruction. He used to go to bed, and after a while get up well. He went on in his last attack for a week with the usual symptoms, and then Mr. Gay saw him. He was low and depressed, vomiting stercoraceous matter. There were no symptoms of the more common causes of obstruction, and the diagnosis was made of constriction by a band. The man would not consent to an operation, and so Mr. Gay got two men to hold the patient with his head downwards, whilst the belly was kneaded from below upwards *quoad* the body, the bowel being directed backwards from the supposed band, whose seat appeared to be indicated by the one painful spot about the umbilicus. The vomiting at once ceased; the belly remained tender, but by and by got more comfortable; the patient asked for food very soon, his bowels acted, and he got well. The man subsequently died of phthisis, and by no way whatever could a post-mortem be obtained. Mr. Gay said that the diagnostic points of strangulation by a solitary band are as follows:—An antecedent history of some disease of the mesentery on bowel, the band being the result of the deposit of reparative lymph; the occurrence of symptoms pointing to the right side as the seat of constriction, and at about twenty-five years of age; and the absence of any symptom of intussusception, such as tenesmus, or of tumour.

CLINICAL SOCIETY OF LONDON.

MR. PAGET, President in the Chair.

DR. PAVY read notes of a case of Paroxsmal Hæmatinuria, and exhibited specimens of the urine. The patient, previously in good health, was seized, after exposure to cold, with nausea, and passed urine porter-like in color. He was sent to bed, and the urine gradually became natural. Eleven days after he was again exposed to cold, and a relapse occurred. The urine in these paroxysms contained colored granules and oxalate-of-lime crystals, but no blood-corpuscles and no casts of tubes. Dr. Pavy spoke of the affection as one characterized by well-defined symptoms quite distinct from ordinary hæmaturia, and said that the attacks always followed exposure to cold. He had a characteristic case just then under his care in Guy's Hospital (Philip ward, No. 43), who could be visited by members interested in the subject.

Dr. Broadbent described a case of the kind. He had not found oxalates, and did not attach importance to their presence.

Mr. Grant related an instance which illustrated the effect of emotional causes in sometimes giving rise to these symptoms.

Mr. T. Smith spoke of a patient who gets hæmatinuria after eating rhubarb-tart, and in whom it would seem to arise from the passage of oxalate-of-lime crystals through the kidneys.

Dr. Greenhow remarked that cases are often entitled paroxysmal hæmatinuria which have no right to that appellation. He had always found oxaluria in cases of this disease. It should be noted that it is the coloring matter of blood, and not corpuscles, which is met with in true cases, and that the albumen is usually soluble in an excess of nitric acid.

Mr. Down referred to an instance of intermittent albuminuria characterized by rigors, and followed by the presence of albumen and oxalate of lime in the urine, but no renal casts.

Dr. Welshire thought the disease was allied to one affecting cattle much exposed to cold in pastures, and called "redwater." He added some personal explanations in reference to a paper read by him at the Society a short time since.

Dr. Pavy, in replying, did not think that Mr. Smith's case could be properly considered one of paroxysmal hæmatinuria. He had usually, but not always, found oxalate-of-lime crystals.

Dr. Silver read an Account of certain Cases of Rheumatism treated with Veratrum Viride. The drug was given in two-minim doses every hour, ten-minim doses causing sickness and pain in the epigastrium. Its effects were noted chiefly with regard to two particulars: reduction of temperature, and diminution of pain. The temperature charts were laid before the meeting, and the author was of opinion that they testified to an abatement of bodily heat as soon as the drug-influence had time to manifest itself; but the cases being only six in number, and his opportunities for further observations being meanwhile in abeyance, he fortified his position by the experience of Biermer, who had used the drug largely in the treatment of croupous pneumonia, and in whose hands it had acted powerfully in inducing defervescence. In the cases recorded a speedy diminution, in certain of them a complete abolition, of pain was brought about within forty-eight hours of giving the drug. As to the other objects to be aimed at in treating acute rheumatism, specially the removal of any *materies morbi* from the system, the facts recorded did not enable the author to speak; only with its use the urine speedily became clear. As to the obviation of heart-complications, it was pointed out that these depended rather on the period of the disease than the withholding of any special mode of treatment, patients ordinarily giving evidence of the complication during the first week of the disease, or at the period of relapse. For reasons hinted at above, the paper could only be considered as a fragment, but might be useful to those who cared to pursue the subject further.

Dr. Clapton remarked that he had experienced great difficulty in inducing the stomach to tolerate the drug. It was well known that the North American Indians, in the selection of their chiefs, adopted the veratrum test, and choose the man who could take most of the drug with impunity. But according to the speaker's experience, it was necessary to make a combination with opium, or some other sedative, and then, of course, we could not judge fairly of therapeutical effects.

Dr. Murchison had employed the drug experimentally in pyrexia, and entirely subscribed to Dr. Silver's remarks as to the evident effect produced on pulse and temperature, having found that in scarlet fever, pneumonia, and typhus such was most markedly the case. He did not, however, think that it shortened the duration of disease, and had not adopted it because, as it appeared, symptoms approaching to syncope were often produced, with no irriration of the stomach, but sufficiently severe to require the use of stimulants. He hoped, however, that veratrum would receive, as it deserved, further attention.

Dr. Thorowgood hoped to have heard something about aconite as compared with veratrum, particularly in preventing the occurence of pericarditis.

Mr. Brudenell Carter wished to know if any exact notes as to the frequency and force of the pulse had been taken at, say, about half an hour after the administration of the drug, and, if any change occurred, how long it lasted.

The President asked if any failure occurred, and if so, in what particulars as to pulse, temperature, or any other symptom.

Mr. Kesteven remarked that, in veterinary practice, a decrease of temperature always followed the administration of any drug to horses.

Dr. C. T. Williams asked if veratrum produced any effect in these cases on the urine or the bowels.

After some brief remarks from Mr. Barwell on the treatment of inflamed joints; in reply to the President,

Dr. Silver said these were all cases treated as in-patients, but that he had seen the most marked effects as to the success or failure of the drug among out-patients. He was glad to have the support of so excellent an authority as Dr. Murchison as to the effect of veratrum in reducing temperature. He could give no information to Dr. Thorowgood as to the relative value of aconite and veratrum. From the exceedingly small doses given there was at first no derangement of stomach, no direct effects on the pulse, both becoming gradually affected. The only exact information as to the secretions was gleaned from America, where it appears that in some cases treated the urine was notably increased by it. The author added that since writing the paper he had found that the veratrum had been used for acute rheumatism in Trousseau's wards, and was greatly commended by Bouchut. Arran had also confirmed its very remarkable powers in lowering the temperature, the pulse and respiration. From the physiological inquiries of Kölliker and Pelikan it seemed probable that veratrum acted primarily and directly upon the heart, but he had rested his views on its remedial action alone. The author greatly regretted that the number of cases at his disposal had not permitted him to contribute more than a fragment to the history of the drug.

Mr. Teeven briefly related the particulars of four cases of unusually large calculi, and stated that there were four points of interest:—(1) that the calculi were large; (2) that the method adopted for their extraction was not in accordance with the rules laid down and accepted by surgeons; (3) that the patients recovered; and (4) that there was no incontinence of urine in any case. Surgeons usually extracted calculi by means of a limited internal incision, and a subsequent so-called process of dilatation, which was in reality complete rupture of the prostate and its capsule. This method was opposed to the teachings of anatomy, and was usually followed by one of three bad results,—death, impotence, or incontinence of urine. If, on the contrary, a free incision be made into the bladder, the rate of mortality will be lessened, and such sequences as impotence or incontinence of urine be abolished. One of the reasons which deterred surgeons from making a free internal incision was the fear of infiltration of urine. Now such an event, after lithotomy, was a physical impossibility. Infiltration of urine could only occur when the fluid was pent up and was unable to escape. After lithotomy the urine passed freely either by the wound or per urethram. Now, as there was no danger of infiltration of urine from making a free incision, and as the extraction of a calculus without the rupture or incision of the prostate was not possible, it followed that it was preferable to extract a stone by cutting it out rather than by tearing. Mr. Teevan stated that after he had, with the forceps, grasped the calculus, he was in the habit of introducing a probe-pointed bistoury, and cutting downwards and outwards sufficiently freely to enable the stone to glide out of the bladder without the slightest traction being exerted. He brought forward the above cases to show that the method was unattended with danger, and that the patients were in all respects better off by being treated with free internal incisions rather than by indefinite lacerations of important structures.

Mr. De Morgan thought it desirable to make a free opening into the prostate, though the plan of making multiple incisions might be useful in the case of a very large stone. With ordinary calculi he had never found any evils arise from moderate section with dilatation of the gland.

Mr. Teevan explained that the incisions were made after the stone was grasped; that there was no such thing as dilatation of the prostate, that it was an impossibility, and that he had the authority of Mr. Ellis for this assertion; that the museum of St. Thomas's Hospital showed cases in which laceration had extended to the orifice of the left ureter, indicating that the calculus was really torn out.

After some brief explanations by Mr. De Morgan,

Mr. Barwell said he believed that in most cases it was the surgeon's idea and endeavor to avoid cutting completely through the capsule of the prostate, and so introducing urine into the recto-vesical pouch, as any such case must be treated as one of extravasation of urine. He did not understand how Mr. Teevan's incisions were produced, and believed that the prostate might be sufficiently dilated without being torn.

Mr. Treevan, in reply, said that, according to his own belief, no one can tell when the prostate is really divided, and there is no such thing as infiltration of urine after lithotomy; that he did not make a large external incision, but enlarged the internal; that the capsule was not, perhaps, completely divided in all cases, but that the most successful cases were those of children, when we could not possibly tell much about the prostate. Liston used to say that he practised dilatation in removing calculi, but Ellis has recorded that in all Liston's fatal cases the capsule was distinctly lacerated. He would further remark that, if there be no stricture of the urethra, inasmuch as the wound became coated with the lymph a few hours after the operation, the urine would flow through the natural channel, and there could be no risk of extravasation.

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PATHOLOGICAL SOCIETY OF LONDON.

J. Hilton, Esq., F.R.S., President, in the Chair.

Dr. Crisp showed a specimen of Ulcer of the Stomach which had opened into one of the arteries, and had given rise to fatal hæmorrhage. The ulcer was situate at the middle of the floor of the stomach.

Mr. Curling mentioned that similar occurrences are not uncommon in connexion with ulceration of the duodenum following burns.

Dr. Powell did not imagine that in these cases there was any primary disease of the coats of the vessels; but, as in the case of the lungs, ulceration simply involved the vessels in common with other tissues.

Dr. Crisp likewise exhibited a specimen of Stricture of the Œsophagus in a woman, from cancerous disease, which involved the base of the tongue, and the lymphatic glands at the base of the neck. The direction of the œsophagus and trachea was altered. The specimen was referred to the Morbid Growths Committee for report.

Mr. Wagstaffe exhibited a specimen of Cystic Sarcoma of the Lower Jaw, removed from a patient by Mr. Le Gros Clark, at St. Thomas's Hospital. The tumour involved the angle of the jaw, and distended the bone from just below the condyle to near the symphysis on the left side. The structure was cystic, with a firm sarcomatous matrix, and the features of particular interest were the existence of numerous small endogenous cysts in the interior of the larger cysts, these endogenous growths occurring in the epithelial lining, and being very readily isolable; and, next, the peculiar arrangement of the sarcomatous growth in cylinders or acini, running through a fibro-nucleated matrix.

Dr. Douglas Powell read a report on certain peculiar Sputa, sent to the Society by Dr. Whitehead, of Manchester, and expectorated by patients suffering from mucous disease which he had lately described. The sputa, were obtained from a woman of leuco-phlegmatic temperament, aged twenty-four, whose appetite was voracious, and who had suffered from dyspnœa and constant rising into the throat of masses of mucus since the age of seven, and who "hawked" from time to time peculiar sputa which seemed to come up to the throat involuntarily, and consisted of pieces three inches long, thicker at one end than the other, greyish-black in color, and in size generally about that of a cedar pencil, composed moreover of a homogeneous substance intermingled with epithelial matter. Dr. Powell reported that the sputa were made up of stratified epithelial cells, with a fibrillated substance containing mucous corpuscles, and without any sign of threads of mucous or bronchial tissue. The sputa seemed to be furnished as the result of a catarrh of the pharynx and upper part of the œsophagus.

Dr. Payne exhibited two interesting specimens illustrative of the production of Pyæmia from the entrance of pus direct into the veins. In the one case the pus entered from a scrofulous abscess into the veins of the neck at the junction of the innominate, there being a distinct opening from the abscess into the venous system at this point. The specimen illustrating this condition was taken from a patient admitted into St. Mary's with symptoms of pyæmia, and, in addition to the presence, post mortem, of a scrofulous abscess behind the innominate veins, there were similar abscesses in the lungs. In the second case, which was sent into hospital with supposed rheumatism, the lesion was in the longitudinal sinus of the dura mater, there being a softened mass on one side, and a small vein coming from the surface of the brain entered it, whilst the dura mater was also the seat of a false membrane. It was supposed that foreign matter entered the circulation through the longitudinal sinus. Dr. Payne referred to the various modes in which pyæmia might be produced, and notably by the entrance of pus or finely granular matter, such as is found in "scrofulous abscess," into the circulation, as in the two instances in question.

Mr. Barwell said, in Dr. Payne's first case there was no true abscess, but only the granular débris formed in so-called scrofulous abscesses; thus it could scarcely be said to be a case of pyæmia from the entrance of pus into the system. And if the abscess were empty, or nearly so, and it was clear that it had been in its present condition some time, why were there no bad symptoms when the abscess first emptied itself into the veins? He further wished to know how it was that the fine granular matter from the abscess was not arrested in the lung, and yet was stopped in the joints.

Dr. Murchison said he imagined scarcely any pathologist maintained now that pyæmia was the result of the entrance of pus into the blood. Dr. Payne's cases were very valuable as bearing upon the atmospheric germ theory, as they afforded distinct negative evidence against its truth.

Dr. Payne referred, in answer to Mr. Barwell, to Wagner's experiments, in which fine powder injected into the circulation escaped arrest in the lungs, but not in other parts.

Dr. Payne likewise exhibited a specimen in which a number of cysts, like bunches of grapes, or uterine hydatids, studded the peritoneum about the ileum and the mesentery. He thought that the air came to the stomach through an ulceration which there existed. The air, on being analysed, was deficient in oxygen.

Dr. Broadbent exhibited specimens illustrating purpura hæmorrhagica occurring in connexion with scarlatina in the skin, intestines, pharynx, throat, and the walls of the heart.

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OBSTETRICAL SOCIETY OF LONDON.

Dr. Graily Hewitt, President, in the Chair.

Dr. C. Kidd read a paper on "Chloral Hydrate and Chloroform in general Obstetric Practice, especially in Labour cases."

Dr. Phillips had no experience of chloral in natural cases; but during the past nine months had used it extensively in the puerperal state, especially in five cases of puerperal mania, and two of puerperal convulsions. In four of the five cases of mania its action has been very beneficial, while in the fifth it failed to produce sleep, though given in full doses. In one case of mania the patient had no sleep for three days, though opium had been given, but within five minutes of taking half a drachm of hydrate of chloral she fell asleep for four hours, and again for five hours more. In another case, on the fourth day it was given in full doses, and the next day the patient was quite rational. The chloral hydrate was very suitable for the restless, sleepless condition not uncommon after delivery. A drachm dose produced no effect in one case of convulsions, while in another, in which the paroxysms were severe and frequently repeated, the action of the chloral was very marked. It was very satisfactory to hear such a favorable account of chloroform in obstetric practice from one so accustomed to its use as Dr. Kidd was. Dr. Phillips had seen it used in abnormal labours without untoward effects, and this notwithstanding that he had had it used continuously for twelve consecutive hours in puerperal convulsions.

Dr. Wiltshire asked for information about the change of chloral into chloroform in the blood. He believed that statement had been called in question.

Dr. Heywood Smith also took a favorable view of the action of chloral in puerperal affections. He narrated a case of puerperal peritonitis with vomiting, in which he had given sixty grains, repeated in three hours, with the best effect.

Dr. Playfair said he had found chloral of the greatest value, but thought that it was somewhat unsafe to give it in such large doses as sixty grains, repeated in three hours. He mentioned a case of puerperal convulsions in which it had acted admirably, but in which the patient eventually sank, and said he was unable to divest himself of the fear that the chloral, which had been given freely, might have had something to do with it.

Dr. Kidd said that Liebreich's theory was now pretty generally received. In labour cases the chloral seemed to be specially useful in the first stage, relieving restlessness, &c., without stopping uterine action. Dr. Kidd insisted on a simple apparatus for giving chloroform, objecting to balloons, tubes, &c., as likely to frighten the patient.

HARVEIAN SOCIETY.

MR. DE MERIC, President, in the Chair.

DR. FARQUHARSON (of Rugby) exhibited specimens, recently brought from Edinburgh, of the oiled silk Protective and Antiseptic Gauze, described by Professor Lister.

Mr. Fairlie Clarke expressed his appreciation of Lister's practice, which he attended sixteen months ago. The specimens exhibited were simple and more perfect than the dressings then employed. He valued the antiseptic treatment of wounds highly, but recommended a further trial of it, irrespective of prejudices about the germ theory, upon which it was premature at present to form an opinion.

Dr. Farquharson, upon the request of Mr. Fairlie Clarke, briefly described the *modus operandi* with the specimens exhibited. Professor Lister, he said, attached great importance to operating in a carbolic atmosphere, and with carbolised instruments, &c.; and that the antiseptic gause, being very absorbent, was preferable to the resin lac formerly used.

Mr. Weeden Cooke remarked upon the success which followed the use of antiseptics other than carbolic acid, especially chlorine.

Dr. Farquharson then read a paper "On some Forms of Pneumonia." After a few general observations, pneumonia attacking the apex of the lung was discussed, with which form the author associated symptoms of an ataxic and tedious kind. Four cases of non-tubercular patients so affected were complicated by a retarded convalescence and long continued consolidation of the apex of the lung. He then narrated a case of pneumonia of the right apex coinciding with jaundice; and another somewhat rare case, in which urgent cerebral symptoms masked the onset of pneumonia at the base of the right lung. Three cases of pneumonia terminating in sudden death were related, in two of which large and firm clots obstructed the pulmonary artery. In treatment the author considered antiphlogistics seldom necessary; aconite had checked a case in a very incipient stage. Mild counter-irritation is generally beneficial, but blisters weaken and irritate. Linseed poultices were frequently objected to owing to their weight and smell. In uncomplicated cases a successful issue might be expected from the use of diaphoretics, tonics, good diet, and a duly regulated allowance of alcohol.

Dr. Hare regarded rapid lung consolidation and its rapid resolution as the typical form of pneumonia accompanied by herpes. He had seen only one case in which herpes was present prove fatal. This form tends to recovery, whether base or apex be involved. Cases in which the apex alone is attacked are less serious than those in which the pneumonia, commencing at the base, extends to the apex, because in the latter the whole lung is implicated.

The President, Dr. Day, Dr. Norton, and Dr. Westmacott took part in the discussion.

Editorial.

PHYSIOLOGY AND HISTOLOGY OF ADIPOSE TISSUE.

TOLDT has recently published in the Transactions of the Vienna Academy an essay on the Physiology and Histology of Fat. In opposition to the statements of Virchow, who maintains that fat-cells are to be regarded as the cells of connective tissue filled with an oily fluid, and are therefore constantly associated with this tissue, Toldt gives as the general results of his inquiries upon the intra-spinal fatty tissue that this, at least, is an organ of a peculiar nature, which neither in regard to its structure nor function can be included amongst the connective tissue formations. In order further to demonstrate that adipose tissue is independent of connective tissue, he refers to the characters and relations of fat in the Batrachia. The masses of fat that surround the uro-genital apparatus of these animals in the larval state consist of large, round, transparent, nucleated cells, not separated by *any* intervening substance except bloodvessels. Passing to the Mammalia, he points out that the first formation of fat in the embryo occurs around the kidneys, and thence gradually extends into the connective tissue of the mesentery after birth. He considers a strong argument in favor of the independency of the adipose tissue to be the fact that it always has, down to its smallest lobules, its own proper and closed system of bloodvessels, which, it is curious to observe, very closely resembles that of the acinous glands. These researches of Toldt enable us to explain the absence of fat in regions where everything appears to favor its formation, as in the sub-muscular connective tissue of the intestinal canal. It explains also the persistence of the tissue, with its characteristic features, even when all the oily matter has been removed by absorption. Whilst fully concurring in the general statement that fat-cells possess in mature adipose tissue a distinct membrane, he differs from Czajewicz in maintaining that when first formed they are destitute of a membrane, this only becoming visible in the later embryonal periods. The minute masses of protoplasm they contain, however, remain throughout life. He makes an interesting observation to the effect that spring frogs that have fasted through the winter, and are excessively lean, present fat drops in which no membrane is distinguishable, but which, reduced to their protoplasmic primary mass, possess the power of amœboid movements. From the consideration of these facts, M. Toldt has arrived at the conclusion that the protoplasm of the fat-cells, when supplied with sufficient nutriment, is capable, like a gland-cell, of forming fat as a kind of secretion; and, inversely, when the consumption of oxidisable material exceeds the supply, it possesses the power of using up the stored-up fat and discharging it into the blood. The mode in which fat is laid up has also been investigated by Fleischer, with a view of determining whether, in accordance with Liebig's idea, the amylaceous compounds ingested are converted into fat directly; or whether, as Voit thinks, the fat consumed in the economy is derived from the fat of the food, and that the amylaceous compounds are only serviceable as readily combustible compounds, by means of which the fat developed from albuminous compounds, and already present in the body, are preserved. The results of his investigations on cows, which were both numerous and extended over a long period of time, were on the whole unfavorable to Voit's views.

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STRUCTURE OF THE RED BLOOD-CORPUSCLES.

Nothing can better illustrate the difficulties that beset the determination of the minute points of microscopical inquiry than the discrepancy of opinion that exists amongst the best observers in regard to the structure of the red blood-corpuscle. For many years it was held to be indisputably a cell, and to consist of a definite cell-wall enclosing cell-contents. For some time past, however, a change of opinion has been visible; and in most of our text-books of physiology, if it be not expressly stated, it is at least hinted as probable, that the corpuscles are homogeneous semi-solid bodies, the surface of which may perhaps be a little more condensed than the interior. The remarkable experiments of Mr. Roberts, of Manchester, on the action of anilin and tannin, though at first apparently in favor of the cell theory, were yet subsequently considered to be explicable on the theory of homogeneity, by supposing that these agents hardened the surface, and so led to the phenomena observed. The peculiarity and persistence of the form of the red corpuscles, and their behavior on the application of pressure, are certainly in favor of this latter view. A paper, however, by Dr. Joseph Richardson, of Philadelphia, which we have just received, speaks strongly in favor of the older cellular view. This gentleman's experiments were conducted upon the Menobranchus, which he obtained from the Cayuga Lake in Western New York, the blood corpuscles of which animal are, as is well known, gigantic, being about 216 times larger than those of man. In endeavoring to discover some indications of the presence of a cell-wall, he found quite unexpectedly that the colored portion possesses the remarkable property of crystallising with great readiness *within* its envelope. Dr. Richardson states that, on slightly concentrating the blood of this animal, one or two crystals form in almost every corpuscle; and the effect of their formation and elongation is precisely what we might expect to be produced by bodies of similar shape contained within an ordinary bladder partially filled with fluid, the ends of the corpuscle being in some instances thrust out till the length becomes a third greater and its breadth correspondingly diminished, the nucleus being closely compressed against the prism. In other instances, where the corpuscles lie across, the whole corpuscle assumes a lozenge or rectangular form, in which state it may be mounted dry. Dr. Richardson further argues—though this is less satisfactory evidence—that on briskly stirring freshly drawn blood with several times its volume of water the coloring matter can be withdrawn, leaving the cell-membrane intact. And, finally, he has succeeded in dividing a corpuscle under the microscope with a sharp needle; the contents escaped, while the cell wall shrank up around the nucleus into a perfectly hyaline particle. From these researches he concludes that the older theory, which asserts that the red corpuscles of the vertebrates generally are vesicles, each composed of a delicate, colorless, inelastic, porous, and perfectly flexible cell-wall, enclosing a colored fluid, which is sometimes crystallisable and is freely miscible with water, explains the physical phenomena presented by the red globule far more satisfactorily than any other hypothesis that has hitherto been advanced.

Without disputing the accuracy of the observations here recorded in reference to the corpuscles of the Amphibia, we would just remark that it by no means follows that the structure of the corpuscles of the higher animals is at all similar; and we are still disposed to hold the opinion of Mr. Gulliver, that, in mammals at least, the red corpuscles are nuclei, and as such are probably homogeneous in composition, and destitute at any rate of a proper cell-wall.

Medical Annotations.

"Ne quid nimis."

A NEW METHOD OF STUDYING THE CAPILLARY CIRCULATION IN MAMMALS.

In the just published part of the *Quarterly Journal of Microscopical Science* (No. 42), Dr. Stricker and Dr. Burdon-Sanderson introduce a new mode of dealing with a subject of considerable interest and importance. The purpose of their method is to promote the observation of the way in which the blood streams through the smallest vessels; to exhibit the visible changes that take place in the living tissues around these capillaries, and to show the relation between these changes and the circulation. Hitherto such observations have been made only in the transparent parts of cold-blooded animals, and the earlier observers were contented with mechanically restraining the movements of the animal. More recently Professor Stricker has employed curara, or woorara, in order to render the animals quiescent, with the best results, the phenomena of the capillary circulation being then traceable for many hours with the greatest precision. Cold-blooded animals, however, are liable to the objection that the phenomena both of their healthy and of their abnormal nutrition are carried on under conditions that are very remote from those that exist in man. To obviate this difficulty, the bat has been employed by some observers, and notably by Mr. Paget and Mr. Wharton Jones in their experiments on inflammation. The thickness of the integument, however, in this instance offers many difficulties in the way of minute observation; and Dr. Sanderson, having previously experienced the advantages accruing from the employment of the omentum of the guinea-pig, recommends its adoption for the present object. The omentum in this animal is of considerable extent, is attached to the greater curvature of the stomach, consists of only two layers of membrane, and contains but very little fat. It is, consequently extremely transparent, and possesses the further advantage of being easily accessible. To avoid pain the animal should be chloralised. When thoroughly under the influence of this agent, the abdomen should be opened, and the omentum withdrawn with the greatest gentleness and care. So thin a membrane would, however, speedily dry up if exposed to the air; and the authors of the paper suggest a plan by which the vital processes may be watched for long periods without interruption, and in a condition not far removed from perfect health. It consists in immersing the membrane at once in a dilute solution of common salt, which constitutes an indifferent fluid, and does not appreciably interfere with the phenomena of nutrition. But it is requisite that the temperature should be maintained, and to effect this they have devised an ingenious arrangement by which warm water is conducted beneath the vessel in which the membrane is spread out, without interfering with the requirements of the microscope, whilst at the same time fresh fluid is added to the bath itself to compensate for loss by evaporation. It was soon found, however, that the objective became clouded by condensation of the vapor; and to obviate this they connect it with a tube filled with water of the same temperature as that of the bath. Under these favorable circumstances the objects that present themselves to the eye of the observer are both numerous and beautiful. The veins, arteries, and capillaries are visible with surpassing clearness, surrounded in some instances by sheaths containing fat-cells, and in others by cells of peculiar form and character; whilst the epithelial elements, with their characteristic spheroidal nuclei, by which the wonderful connective tissue network of the omentum is covered, is everywhere brought into view. To the original paper a woodcut is appended, which renders the whole arrangement perfectly intelligible, whilst it is so simple that any working microscopist could make the necessary adaptations in a few hours. It is applicable both to air and immersion lenses, but the quarter of Ross has hitherto been found to be the most serviceable.

HYSTERIA.

Mr. De Berdt Hovell has been endeavoring in various communications to the profession to bring us to sounder views and a more considerate treatment of hysteria. He especially objects to the name, as implying a uterine origin of the disease. In this he is right, as hysteria certainly proceeds often from other than uterine causes, and occurs in male subjects. This, indeed, is now universally recognised by writers on the subject. While admitting this, we must say that we do not see much analogy between the cases quoted by Mr. Hovell of sudden death from shock, of the British army approaching Magdala fatigued almost to demoralisation, and the laboring man buried by a slip of earth, cold and almost pulseless, and becoming *hysterical* as he recovered, and the ordinary case of hysteria, which does, as a matter of sound observation, occur for the most part in women, and in women from about the age of puberty to the termination of the menstrual period. The disposition to exaggerate painful sensations, the morbid craving for sympathy, and the tendency to simulate or deceive, are the most characteristic elements of hysteria. Mr. Hovell represents the state as essentially one of depression, whether physical or moral; that the symptoms have a real existence, and should be treated as if they were real; that it is an aggravation of the patient's distress to have her symptoms doubted and disregarded. These points are very important, and will be generally conceded. Mr. Hovell attaches great importance to the moral or psychical origin of symptoms, and evidently thinks that the disease often arises from moral shocks, such as grief, fear, anxiety, disappointed hope, broken confidence, &c. These should certainly be regarded, and, as far as may be, removed. Mr. Hovell would have us treat hysterical patients more considerately, as we treat other patients whose moral sense or whose feelings are perverted. This, too, is right. But it comes of the very nature of real hysteria that it does not bear pity well. Too much sympathy would do it harm. The truth seems to be that we include too many states under the same name. Where we have merely to do with hyperæsthesia, and have this associated with depressed strength or anæmia, or with depressing moral circumstances, the case is clearly one for cheerful and attentive treatment, for tonics and all strengthening influences, and for the rectification of any error of function which, as a matter of fact, will often be uterine. But even here the error of uterine function may only be an effect, a symptom —not a cause. But when the deceitful or exaggerating tendency coexists with tolerably good physical condition, the case may still be one for pity, but it must be a very wise pity; and the patient will not be the worse for understanding that the practitioner takes different views of her case from those which she holds. Mr. Hovell goes so far as to cast the ægis of his pity over "the Welsh fasting girl." "The poor child was not the cause of the juggling, but the victim of it." *De mortuis, &c.* But we should not regard her as quite so innocent as this sentence would imply, albeit we quite agree with Mr. Hovell that the object of treatment, even in such cases, is to relieve the condition which leads to such painful results.

THE PATHOLOGY OF TINEA DECALVANS.

ONE of the most debated points in cutaneous pathology is the parasitic origin of tinea decalvans, certain authorities as is well known, ascribing it to simple atrophy of the hair-bulbs, and others to the attack of the microsporon Audouini. A recent writer, Dr. Duhring, of Philadelphia, has given the results of his observations in a practical little paper in one of the American journals, and affirms that no parasite is to be discovered in the diseased hairs of tinea decalvans. Only can he find the effects of a sudden arrest of nutrition from some cause, and a rapid wasting and death in consequence, due most probably to the atrophy of the papilla itself. But he makes this important statement, that about the roots and shafts of all hairs, normal or diseased, varying with the case, there exists an appreciable amount of sebum, broken-up epidermic cells, and *débris*. When subjected to the action of a reagent, the sebum has a tendency to split and break up into fine particles, and these often adhere so closely and with such tenacity to the hairs, as to accurately resemble spores; and he thinks that it is to these deceptive little particles of sebum that the name of microsporon Audouini owes its existence. We do not doubt that in many cases the appearance described by Dr. Duhring has been mistaken for fungus element. But it is still asserted by some that a true microsporon exists in tinea decalvans, an opinion based upon evidence other than that afforded by the mere *appearance* of spores, which might be accounted for by the presence of fatty particles. The general features of this form of tinea, occurring in those who have vigorous growths of dark hair, and in the young especially; its apparent contagiousness, as exemplified, for instance, in the epidemic at the Hanwell schools investigated by the late Dr. Hillier; the absence of any sufficient cause to account for atrophy; its coexistence with other forms of tinea; and especially the results of germination, by which mycelial filaments are produced,—all these at least lend much weight to the parasitic theory of its origin. We refer, of course, not to general area, but to the localised form of alopecia. It seems to us that dermatologists have to determine whether there is not a minute form of fungus present, and especially attacking the papilla, so causing its atrophy, and which is easily overlooked. It is asserted by some that what is termed *débris* by the Germans is in fact fungus. At all events, Dr. Duhring has done good service in calling attention to a condition of sebum which often misleads careless observers, and which may readily be mistaken for a fungus.

Dr. Bristowe has lately added the weight of his opinion to those who hold that the disease is non-parasitic, and he mentions a very important fact in support of his view—viz., his inability to discover anything but the evidence of atrophy in the follicles of a portion of the skin removed from a woman who had suffered from tinea decalvans during life. Dr. Bristowe thinks Dr. Hillier might have been mistaken in diagnosis, but the latter was a very accurate observer, was very familiar with cutaneous diseases, and might have erred in diagnosis in a solitary case, but scarcely in so many dozen instances as occurred at the Hanwell schools. So far, however, as the positive evidence goes at present, it is certainly against the parasitic nature of the disease.

ULTIMATE DISTRIBUTION OF THE NERVES IN THE TAIL OF THE TADPOLE.

IN a recent essay published by Dr. E. Klein in the Reports of the meetings of the Academy of Vienna, he gives the results of his observations on this delicate point of minute anatomy, which essentially corroborate the views of Dr. Beale showing that the ultimate terminations of the nerves form loops. Dr. Klein describes the principal nerve trunks as undergoing subdivision, till at length there are only anastomosing non-medullated fibres, which, however, exhibit clearly the fibrillar structure of axis cylinders. From this web, fine pale fibres proceed, which form a second plexus beneath the sub-epithelial hyaline layer. At tolerably regular distances these fibres exhibit fusiform swellings, each with nucleus and nucleolus (bipolar ganglion cells). From this, again, the finest branches are given off, which form a plexus immediately beneath the epithelium, and amongst them are distributed bodies that appear to be multipolar ganglion cells. Dr. Klein was unable to observe any communication between the fibres of the finest sub-epithelial plexus and the epithelium, or any other of the tissues of the tail of the tadpole.

Correspondence.

"Audi alteram partem."

HYDRATE OF CHLORAL IN EPILEPTIC MANIA.

To the Editor of THE LANCET.

SIR,—The following case may probably be considered of sufficient importance for publication.

J. L——, farm laborer, aged thirty, subject to epileptic attacks for many years, of a quiet, lymphatic temperament, with considerable deafness, intelligent, and of a religious turn of mind. I was sent for to him on Jan. 3rd. A few days before this the fits had increased in frequency and intensity, probably from the severity of the weather, and resulted in a complete derangement of his mental faculties. I found that he had had no sleep for three nights. He talked all manner of nonsense, and was altogether incapable of fixing his attention on a single subject. He was so restless and violent that an attendant was constantly obliged to be with him. I consider that I should have been fully justified in filling up a certificate for his conveyance to an asylum. I told his father I would try something first. I gave him the hydrate of chloral in ten-grain doses three times a day (he had twelve doses altogether), with a few aperient pills. After the second dose he became quieter, passed a much better night; and though the delusions under which he was laboring had not quite subsided, they gradually disappeared, and within a fortnight the tone of his mind was quite restored, and he has not had any return of epileptic attacks. The hydrate of chloral seems to be winning its way as a safe, valuable, and reliable means of effectually soothing the irritation of the brain and nervous system. Your obedient servant,

HENRY MEYMOTT.

Ludlow, Jan. 17th, 1871.

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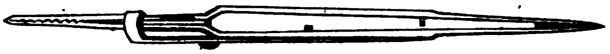
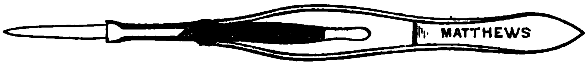
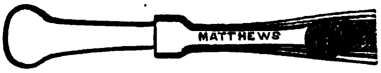
THE TORSION OF ARTERIES.

To the Editor of THE LANCET.

SIR,—I have been asked so often as to the form of forceps I recommend for the practice of torsion, and instruments have been sold as mine which I have no wish to claim, that I send you the drawings of two pairs of forceps which Mr. Matthews, of Portugal-street, made for me some time back. The narrow-bladed pair is for arteries of moderate calibre; the broad pair, for the femoral or brachial arteries. They answer admirably.







I am, Sir, yours faithfully,

THOMAS BRYANT.

Finsbury-square, Jan. 1871.

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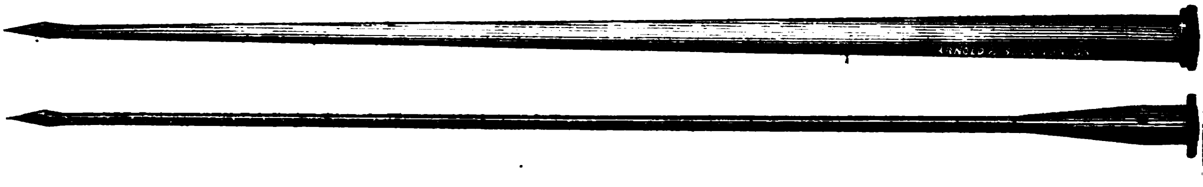
IMPROVED BLOW-PIPE.

To the Editor of THE LANCET.

SIR,—I beg to forward you a specimen of an improved blow-pipe, which possesses many advantages over the ordinary dissection one. It consists of a blow-pipe with the addition of a steel stilette, at the end of which is a trocar point. The blow-pipe now in use is continually getting blocked up, in consequence of the necessity of having to thrust it through animal tissues, and it thus becomes for the time useless to the student. It is obvious that the specimen I forward you overcomes this difficulty. For instance, in inflating the abdomen, the blow-pipe, by means of the trocar-point, which projects beyond the end of the blow-pipe, may be thrust through the umbilicus, and the stilette having been withdraw, there will be found no difficulty in blowing in the air; and its egress is easily prevented by securing the hole, which is necessarily very small. The blow-pipe may also be used as a trocar and canula, in the many small operations in which that instrument is used.



The upper illustration shows the blowpipe and stilette ready for use. The lower illustration represents the stilette, with trocar point, which fits into the blow-pipe.

The instrument was made for me by Messrs. Arnold and Sons, of 35 and 36, West Smithfield.

I am, Sir, your obedient servant,

H. A. ALFORD NICHOLLS,

St. Bartholomew's Hospital, Jan. 4th, 1871.

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CASE OF PERFORATING PLANTAR ULCER.

To the Editor of THE LANCET.

SIR,—A. B——, a cook, aged fifty-six, has for many years been troubled with an ulcerating corn on the plantar region, which has for some time communicated with the dorsum at the second metatarso-phalangeal articulation. She had great pain in walking, with more or less copious offensive discharge. A probe can be passed from the dorsal to the plantar surface, and roughened bone felt. Various modes of treatment were employed, and latterly the ulcer has ceased discharging, and virtually healed up, after keeping the fistulous tract filled with carbolised oil, and affixing a thick piece of leather on the shoe to prevent pressure in walking over the affected part. If the carbolised oil (proportions, one to four) be discontinued for any prolonged period, the pain returns.

As the case had at times assumed appearances that led me to think of excising the parts, the relief afforded by the above means may be worthy of record. Yours truly,

RICHARD NEALE, M.D., Lond.

Boundary-road, St. John's-wood, January, 1871.

MEDICAL EXPERIENCES OF THE WAR.

AT a late meeting Dr. Thudichum continued the narrative, before the Medical Society of London, of his recent experiences at the seat of war, especially dwelling upon the character and effects of the different wounds inflicted by the chassepôt and the needle-gun. Many German soldiers were wounded at distances where they could scarcely distinguish the enemy. The wounds so caused were characterised by slight penetration of the tissues; sometimes the clothes were not rent by the ball, but carried forward into the fleshy parts a short way, and on pulling away the intruded portion of clothes, the ball came away also. Very ugly contusions were produced by spent balls striking hard bony parts, for instance the tibia, and frequently a portion of the struck bone subsequently necrosed. The range of the chassepôt had for the German this disadvantage, that the latter had to advance always under the fire of the French over a space of 1200 paces before they could or did fire. Few of the German bullets reached the French with the small velocity and low penetrating power of the chassepôt bullets at 1200 paces. The effect of the German bullets was, at their longest range, mostly more severe than those of the French; and at equal velocities the German bullets, being the larger, had the greater penetrating power, and splintered and wounded the more decidedly of the two kinds. In penetrating wounds of the abdomen and chest, the small French bullet seems to give to the wounded man a better chance of recovery. Wounds produced by guns fired point blank—i.e., made by balls at their highest velocity,—if no bones or large bloodvessels were injured, healed better than those inflicted by balls at lower velocities. The most common wounds, next to those made by balls, were such as followed the striking of the body with fragments of shells, and these were fearfully lacerated; the large pieces of shell tear, break, and kill; the smaller penetrate deeply. These fragments killed oftentimes without external laceration. The majority of cases in the hospital to which Dr. Thudichum was attached were injuries of bones in the secondary state, requiring operative interference. Many French were struck on the front and top of the head on account of their awaiting the attack of the Germans in rifle-pits; the mode of treating these cases was to remove loose fragments of bone by chiselling off projecting pieces and jammed edges, and thus allowing depressed pieces to rise. The operation of trephining was not adopted, and was considered injurious. The wounds themselves generally healed well. The complications of the various wounds were many and most varied. A French soldier was wounded at Gravelotte by a piece of a bombshell, which entered the *right* mastoid process, leaving an external wound of about half an inch in length, running perpendicularly. He was thought to have received a second injury below the *left* eye, but the latter wound was found to be the exit of the piece of shell which entered at the right mastoid process. The right facial nerve was completely paralysed. The canals made by bullets were, in some cases, lined by loose spiculæ of bone. One ball had entered the right shoulder below the spine of the scapula, just missed the cavity of the chest, coursed round the first rib, destroyed the brachial plexus so as to completely paralyse the arm, and then had lodged beneath the integuments in front below the middle of the right clavicle. A French sergeant, who had been in Rome in 1848, the Crimea and Italy, was shot through the pelvis from one side above the trochanter to the other above the right groin. The wound healed in six weeks, and he did well. Resection of the shoulder-joint did well in one case. In the hands of the best surgeons, and under the most favorable conditions, excisions of the knee and elbow-joints did badly. These cases cannot have the care bestowed upon them in the field which they require in order to bring them to a successful issue; and Dr. Thudichum adheres to the old dictum "that gunshot wounds of the knee-joint require amputation." Carbolised lint was used with great advantage. No sponges were allowed for cleansing wounds, carded oakum being employed for the purpose, and after use being at once burned. Oakum itself does not seem to have been suitable for wounds, being too coarse. Phenylized lint is preferred by Dr. Thudichum. Bone operations did well, because sharp chisels were used, rigorous cleanliness of hands, instruments, and bandages was observed, and the patients had plenty of fresh air, and the tents were kept clean. Dr. Thudichum condemns the use of saws, and thinks that bones are "the most manageable part of the body." Wounds from the mitrailleuse were not seen by the author; and he adds that the Germans did not dread this weapon, since its missiles keep close together, and do not spread so as to wound many at a time. Wounds from shrapnell, and from sabre or from bayonet, were frequent in Dr. Thudichum's hospital; and he says, "at close quarters that side generally decamped which had the least liking for cold steel." Typhoid and dysentry, of course, were seen in fair abundance. The patients were many of them poor, and came from distant parts of Germany. Dr. Thudichum prefers male nurses for military hospitals. *Religieuses* in one sense make good nurses, because taught to obey; but otherwise offer no advantage over hired nurses, except that they mostly work for keep only, and not for wages as well as board. Dr. Thudichum concluded by paying a tribute to the medical staff of the hospital to which he was attached, and his belief that they had done well what they had done, and in such a way as to uphold the standard of English surgery.

Foreign Gleanings.

THE SULPHITES AND THE HYPOSULPHITES OF SODA OR MAGNESIA.

Dr. Ronzani gave these salts, proposed by Polli as the most trustworthy antiseptics, a fair trial in malarious intermittents, and found them to answer remarkably well. He administered the sulphite of magnesia in doses varying from 30 to 60 grains, three or four times a day. Out of 120 patients suffering from marsh fever, two-thirds were free from attacks in a very short time; the remaining third had quinine and other drugs besides the sulphite. Of course Polli, and the numerous Italian physicians who give the sulphites, believe in the fermentative nature of the poison of malaria. Dr. Ronzani, in his article, makes judicious remarks as to the action of the toxic agent. He used hyposulphite of lime especially to treat the ague cake, giving ninety grains a day at the beginning, and increasing the dose by fifteen grains every second day for a fortnight. In obstinate cases, blisters over the enlarged spleen, and quinine, iron, and rhubarb internally. The author dwells especially on the low price of the sulphites. We do not suffer much, in this country, from marsh fever; but we have to contend against many diseases the origin of which is poisoned blood. It would be of advantage to give these sulphites and hyposulphites a fair trial, taking care that the salts are pure, and have not run into sulphates.—*Annali di Medicina*, November, 1870.

ANEURISMS OF THE THORACIC AORTA TREATED BY THE GALVANIC CURRENT.

Professor Ciniselli published, in the year 1856, a work wherein he defended this practice (first introduced by Pétrequin in 1845), and showed which cases were favorable for the operation, and what errors should be avoided in the operative procedure. We now find, in the *Annali* *di Medicina*, of Milan, of November, 1870, a most important article on the subject, which occupies more than one hundred pages of the number. All the cases thus treated are related in full, with the remarks of the operators; a very lucid table is added, where the principle features of the cases can be seen at a glance; and the article closes with rules and hints respecting this peculiar treatment. The table shows that, from 1846 to 1866, nine cases were treated in this manner, all followed by death, one patient having committed suicide. From 1868 to July, 1870, fourteen cases are recorded, of which six recovered. This important compilation must have cost the eminent author an enormous amount of labor, and will prove of the highest utility to those interested in the subject. Four of the cases belonged to Prof, Ciniselli, one of which was crowned with success.

BELLADONNA IN SMALL-POX.

Now that this epidemic is raging with such severity in London, it is well to remember that several authors, and most lately Dr. Barbier, of Lyons, treat the disease with belladonna. From a fifth to a whole grain may be given in the twenty-four hours for five or six days. As a prophylactic of variola (also used in scarlet fever), it may be administered thus:—Belladonna root, three grains; sugar, forty-five grains, in sixty papers. Two or three of these may be given to a child one year old; the dose may be increased to sixfold, according to age. Dr. Barbier maintains that the pitting is prevented by the application of strips of Vigo's plaster, the analogue of which we have in the Emplastrum ammoniaci c. hydrargyro.

A LEECH IN THE PHARYNX.

M. Trolard says, in *L' Algérie Médicale*, No. 29, 1870, that a lady rather hastily drank a glass of unfiltered water, and the next day felt some tickling towards the larynx. Having examined the pitcher whence the water had been obtained, she found seven small leeches. Nausea and spitting of blood continued, and much pain was felt about the pharynx. With the laryngoscope M. Trolard saw a leech curled up in the groove which, on the right side, runs along the larynx. The leech was seized with appropriate forceps, and removed with some difficulty, as it clung tenaciously to the part.

ANEURISM OF THE GLUTEAL ARTERY.

Professor Gallozzi of Naples had to treat a boy of sixteen, who, from a stab in the right gluteal region, presented after some days an enormous tumour, occupying the whole of the above-mentioned locality. The question now arose whether attempts should be made to reduce the tumour by injection of coagulating fluids, or by emptying the sac and seeking for the gluteal artery, or by tying the external iliac. After due consideration, the latter measure was preferred. The vessel was deligated in the usual manner, and the boy recovered perfectly. Although the main-vessel operation is serious, it certainly holds out more chances of success than those which the professor had thought it prudent to discuss.

INJECTIONS OF PERCHLORIDE OF IRON AND MANGANESE IN FISTULOUS TRACTS AND HYDROCELE.

Professor Marcacci (*Annali di Chemica*) has published six cases of fistulous tracts connected with diseased bone, and seven of hydrocele, in which the solution marking six degrees was injected in small quantities, and left but a short time. Judging from the success obtained in these cases by the author, the practice is worthy of imitation. However, we should not forget Mr. Pollock's sulphuric acid plan in fistulous tracts, or the liquor of Villate, so much praised in France for the same pathological state. Nor have surgeons to complain of the injection of iodine or port wine in hydrocele. Professor Marcacci states very frankly that, in the latter complaint, the perchloride produced an ugly thickening of parts.

INJECTIONS OF ERGOTIN IN DISEASES OF THE UTERUS.

Dr. von Swiderski highly recommends, in the *Berl. Kl. Woch.*, No. 50, 1870, such injections in chronic metritis, displacements, and hæmorrhage. He uses different solutions according as the complaints are acute or chronic. The strong solution for acute cases is thus composed:—Watery extract of ergot, 37 grains; spirits of wine and glycerine, of each 2 drachms: the weaker for chronic cases. The effect is seen in one or two hours. The average dose for an injection is about three grains. Dr. von Swiderski relates, with full details, several cases of metrorrhagia, both simple and connected with parturition, versions and flexions, in which he obtained great success by injecting every other day for a week or less. Comparative trials with ergotin taken into the stomach, or injected under the skin, would be interesting.

RETENTION OF PLACENTA.

Dr. Rossi states, in the *Ungar. Med. Chir. Presse*, No. 47, 1870, that, in these cases, when removal, especially after abortion, is impossible, he succeeded by injecting perchloride of iron into the uterus—equal parts of water and the perchloride. One case is related which was complicated with the extra-uterine presence of a fœtal head for the last three years. Abortion was induced, and the placenta came away, piecemeal, after injections of the perchloride into the womb.

News Items, Medical Facts, &c.

Preservation of Food.—At a late meeting of the Society of Arts, Mr. Richard Jones read a paper on the question of the "Preservation of Animal Food," and described his mode of cooking meat so as to preserve it for an indefinate length of time. By this process the food is placed in tins, and the tins set in a water or chloride-of-calcium bath, and exposed to heat until the meat within is effectually cooked. During this proceeding the air and moisture within the tins are removed by connexion of each tin with a vacuum. Some specimens of food that had been preserved for four months were placed before the Society, and were considered a great success. It would, in fact, have been difficult to discover any difference between them and similar food recently cooked in the ordinary way.

The Cause of Sea-sickness.—Dr. Neudörfer states, in the *Allg. Mil. Zeil.* No. 50, 1870, that sea-sickness is greatly due to the reception of salt water in the lungs. The aqueous portion is excreted, but the saline particles remain in the lungs, and hinder the interchange of gases. When the saline deposits have reached a certain amount, they act as a toxic agent, and generate sea-sickness. Hence the necessity of allowing the passage of water, but stopping the admission of saline particles. This reminds one of Professor Tyndall's proposals of arresting dust with cotton wool, and excluding the cold air.

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PRACTICAL PHYSIOLOGY.

Lectures

ON

EXPERIMENTAL PHYSIOLOGY.

By **Wm. Rutherford**, M.D., F.R.S.E.,

Professor of Physiology in King's College.

LECTURE IV.

INNERVATION.—THE CONDUCTION OF NERVE ENERGY.

Gentlemen,—We have studied in a general way that which concerns energy and irritability. In my first lecture I mentioned the forms of energy which are evolved by the tissues of living beings; in my second I discussed the nature of irritability and irritants; in my last I demonstrated that the irritability of the tissues may be increased or diminished by various agents.

We shall now investigate the physiology of the nervous system. You have seen what happens when we stimulate a living nerve connected with a muscle. You have had experimental evidence of the fact that, on stimulating a nerve, energy is evolved, and that this energy travels along the nerve and causes the muscle to contract. We term this form of energy nerve energy. We have already studied (Lectures II. and III.) the agents which cause a nerve to evolve energy, as well as those which increase or diminish the readiness with which it does this. We shall now experiment with a view to ascertain the rapidity with which the energy travels along the nerve. We shall stimulate a motor nerve, and then we shall measure the time which the energy takes to pass along a certain length of nerve. To Helmholtz, the distinguished Professor of Physiology in Heidelberg, we are indebted for the means which first enabled physiologists to measure the velocity of nerve energy. Before he undertook the investigation of this recondite subject nothing but vague fancies prevailed regarding the speed of nerve transmission. The generally prevalent notion was that nerve actions are so rapid that the quickness of thought might well be regarded as proverbial, even in the case of individuals whose close alliance to a certain quadruped is not indicated by preternatural elongation of the ears. But even the least asinine of mortals require "time to think," and that time, though short, is nevertheless quite measurable. We shall, however, put the velocity of thought out of the question meanwhile, and shall busy ourselves with the mensuration of the velocity of nerve energy as it passes along the motor nerve of a frog. We take this animal because nerve energy travels at a slower rate in cold than in warm blooded animals.

Several instruments have been invented for the purpose of measuring the rate of nerve force. The one I show you is that which has been invented by Helmholtz, and to some extent modified by Du Bois Reymond. It is named Helmholtz and Du Bois Reymond's myograph. It is intended not merely for the purpose I mention, but also for studying muscular contraction. For this purpose it has, however, been superseded by more suitable instruments invented by Marey. [It would be inconvenient to repeat here the lengthened description which was given of this instrument. A full account, with numerous engravings, will be found in Morgan's "Electro-therapeutics"; New York, 1868. The reader will, however, understand the essential parts of the apparatus, and the manner in which they are used for the performance of the experiment above referred to, by a perusal of the following.]

The instrument consists of three principal parts. First: a cylinder (c′), turned by clock-work, provided with a dial by which the rate of the cylinder's evolution in a given time may be ascertained. The cylinder's surface is covered with glass, which is smoked before each experiment, in order that tracings may be made on it by means of a stilette (s). Second: apparatus for holding the leg of a frog, and for connecting a beam (b), bearing the stilette, with a muscle. The femur is fixed in the forceps (f); the tendo Achillis is hooked to the brass beam (b). This beam is movable in a vertical direction. When the muscle contracts, the beam is raised, and with it the stilette. A tracing indicating this movement is produced by the stilette upon the smoked cylinder. The muscle and nerve are covered by a glass shade containing moist blotting-paper, to prevent drying of the tissues. Third: arrangement by which the sciatic nerve is irritated at a given moment. The nerve is excited by the shock produced in the secondary coil of an induction machine by breaking the current in the primary circuit. The nerve is laid upon two pairs of wires connected with a commutator: one pair is placed near the muscle, the other pair is placed near the free end of the nerve. The object of the experiment is to ascertain the time taken by the nerve-influence to pass from the piece of nerve on the one pair of wires to that on the other pair. The commutator is connected with the secondary coil (R″) of Du Bois Reymond's induction machine. Two wires are attached to the primary coil (R′): one of these goes to the battery (one Daniell or Grove's cell); the other is joined to a brass pillar (K′). A third wire is joined to the battery and to the brass pillar (K″). A movable brass bar (D) joins K′ and K″ when the pin (V) is in contact with the top of the pillar K′: when the brass bar (D) is in this position, the primary circuit is completed; when it is elevated, the circuit is broken. Its breakage produces a momentary shock in the secondary coil of the machine, which excites the nerve. The circuit in the primary coil is broken, and the nerve thereby stimulated at a given moment by means of an ingenious contrivance contained in a cylindrical brass box (C″). This is a movable weight held by a spring at a little distance from the circumference of the box. When the box is thrown into revolution, the weight, by reason of centrifugal force, moves outwards; and when it reaches the circumference it liberates a brass tooth (T), which, impelled by a spring, flies outwards. As the box revolves in a direction indicated by the arrow, the tooth, after its liberation, projects far enough to come in contact, during its revolution, with the brass arm (A); this it partially rotates, so as to cause its opposite end to raise the brass bar (D), and thereby break the current in the primary coil. By means of the dial upon the clock-work, the rate of the cylinder's revolution just when the current is broken can be accurately ascertained. By means of a spiral spring attached to the weight in the brass box, the rapidity with which the weight moves outwards may be regulated: we can so arrange the spring that the weight will reach the side of the box when the cylinder revolves at a rate of ten times, or fifteen times, in a second; and so on. As long as we leave the spring untouched, the weight always reaches the side of the box when the cylinder has attained the same degree of speed. The importance of this fact will be apparent when the experiment is performed. This arrangement for breaking the current we owe to Du Bois Reymond. In the instrument originally made by Helmholtz the current was broken by centrifugal balls. Du Bois Reymond's apparatus is more compact, and more easily managed.

FIG. 9.

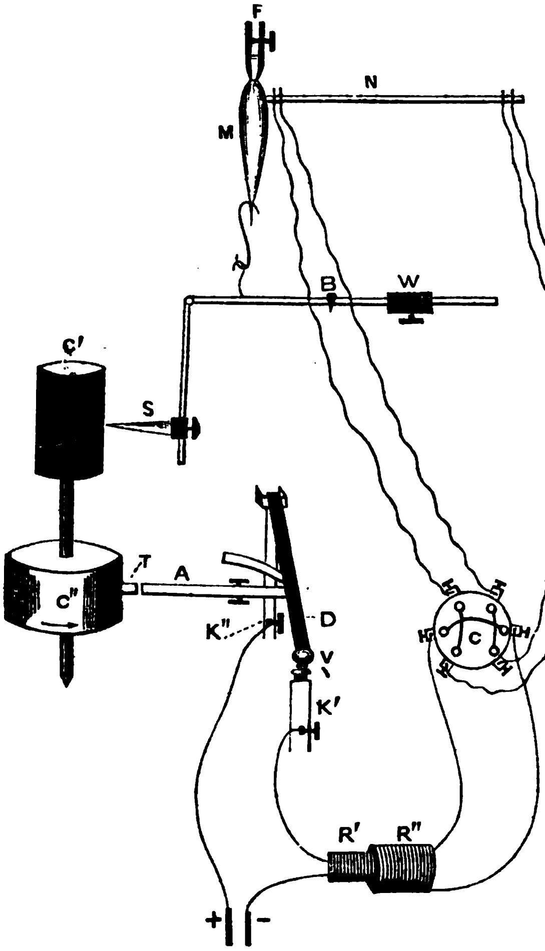


Diagram showing the principal parts of Helmholtz and Du Bois Reymond's myograph, and the manner in which the nerve of a frog is stimulated with a view to ascertain the rapidity with which nerve force is transmitted along it. N, Sciatic nerve. M, Gastrocnemius. F, Forceps. B, A movable beam joined to the muscle by means of a hook. W, A movable weight. S, A stilette for making a tracing on the blackened cylinder (C′). R′, Primary coil. R″, Secondary coil of Du Bois Reymond's induction machine. C, Commutator, with wires joining it to secondary coil of induction machine and to the nerve. D, A brass bar, hinged at one end to a brass pillar (K″), and resting with its other end upon another brass pillar (K′) by means of a brass pin (V). The bar (D) and the brass pillars (K′ and K″) form a part of the primary electrical circuit. When the bar (D) is raised, V is removed from K′, and the primary circuit is thereby broken. When the cylinder (C″), revolving in the direction indicated by the arrow, has attained a given speed, a brass tooth (T) springs out to a distance from the cylinder's surface, greater than that represented in the diagram. It then, in its revolution, comes in contact with the brass bar (A), which it causes to rotate upon a vertical axis. Its end under the sloping bar (D) is turned towards V, and the bar (D) is thereby lifted up, causing breakage of the primary circuit in the induction machine, and the appearance of a momentary current in its secondary circuit.

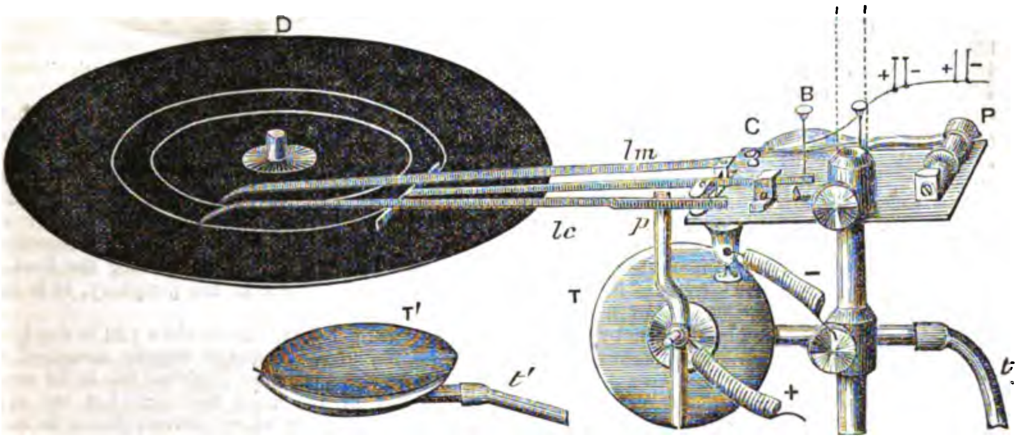
I now dissect out a perfectly fresh sciatic nerve and gastrocnemius, and will attach them to the instrument in the manner indicated in the diagram which I have made. While I do this, one of you will blacken the cylinder. (This is done by causing it to rapidly revolve in the smoke of a turpentine lamp. A *thin* layer of soot is best)...... Now everything is ready for the experiment. The bridge of the commutator is so arranged that when the current in the primary coil is broken the nerve will be irritated close to the muscle. We now allow the clockwork to move. It will take some time to cause the cylinder to revolve at the necessary rate. ...... The sudden noise we just now heard was due to the arm (K) being knocked over by the tooth (T). You saw that the muscle contracted immediately thereafter. I now put on the drag and stop the machine. Look at the surface of the cylinder, and

FIG. 10.

Tracings produced on the blackened cylinder of the myograph during the performance of the experiment described in the text.

you will see a horizontal and a curved line (similar to those in Fig. 10.) The horizontal line is produced during rest, the curve is produced during contraction of the muscle. I shall make a mark at the point where this curve leaves the horizontal line, so that we may know that this curve indicates the muscular contraction produced by stimulating the nerve close to the muscle. (This curve is the higher of the two in Fig. 10.) We shall now repeat the experiment. This time, however, we turn the bridge of the commutator so that not the portion of the nerve near, but that distant from the muscle shall be irritated. ...... If you now examine the cylinder's surface you will find two curves instead of one. That last produced is a little further along the cylinder than the first. The cylinder has had time to move round a little further in this case ere the contraction of the muscle ensued. To what can this be owing save the fact that in this instance the energy generated in the nerve by the irritant has had to travel through a greater extent of nerve? The interval between the origins of the two curves from the horizontal line indicates the period of time taken by the nerve energy to pass from the one irritated point of nerve to the other. We now want to find out the value in time of this interval upon the cylinder's surface. We must first of all measure the length of the interval. For this purpose I take a sheet of thin gelatine, slightly moisten one of its surfaces, and roll the cylinder along it. The soot adheres to the gelatine, and you see that a distinct impression has been taken (similar to that in Fig. 10.) We can readily preserve such tracings by varnishing them with photographer's varnish. Now that we have the tracing upon a flat surface it is easy, by means of a pair of compasses and a scale, or, if necessary, a micrometer, to measure the interval between the origins of the curves. I find that this is ⅙ in. What is the value *in time* of this space? To answer this question, of course we must know the circumference of the cylinder and the rapidity with which the cylinder revolved when the curves were made upon it. The circumference of the cylinder is 6 in. Let us set the instrument in motion again, and ascertain how often the cylinder revolves in a second when the nerve is irritated. The little hand upon the dial of the apparatus moves once for every 15 revolutions of the cylinder. By comparing its movements with those of the seconds-hand of a watch, we can ascertain the rate of movement with nearly absolute precision. .... We have seen, then, that the cylinder revolves 15 times in a second when the nerve is irritated; hence 6 × 15 = 90 in. of a horizontal line upon the cylinder's surface (see Fig. 10) = 1 sec. If 90 in. are equal to 1 sec., ⅙ in. must necessarily equal 1-540 sec. The nerve energy therefore took this fraction of a second to travel through the portion of nerve between the two pairs of wires. (See Fig. 9.) I divide the nerve close to the wires, so as to remove the portion which intervenes between the near and the distant pairs. We measure the length of this. It is 2 in. The nerve energy has therefore, in this experiment, taken 1-540 sec. to travel through 2 in. of nerve. It will therefore take 1-90 sec. to pass along 1 ft., and obviously its velocity must be 90 ft. per second. The speed varies in different cases, and even in the same nerve in different conditions. The result obtained by us represents the average for the nerve of the frog.

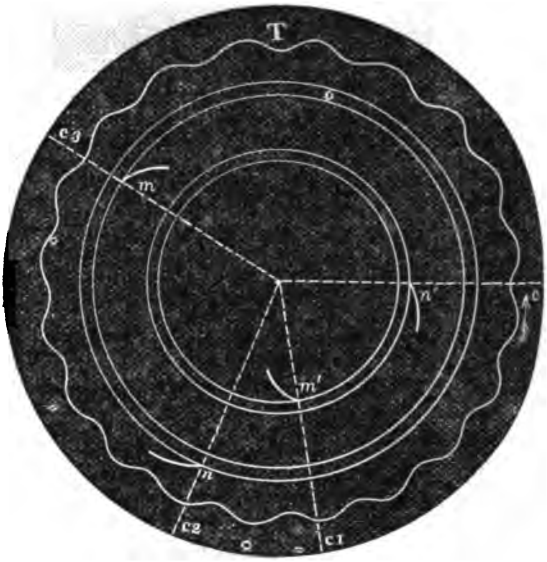
FIG. 11.



Marey's myograph for measuring the velocity of nerve energy. (For description see text.)

An ingenious and simple myograph has been invented by Marey for performing experiments such as the one I have shown you. I have always been in the habit of using Helmholtz's instrument, and, as it works satisfactorily, I have not procured that invented by Marey. I show you a drawing (Fig. 11) of the instrument, however, in order that you may have an idea of another manner in which this experiment may be done. The tracings are in this case made upon a glass disc (D) blackened on its upper surface. The axle of the disc is fixed to the axle of Foucault's regulator on Secretan's registering apparatus. By this apparatus a sufficiently great and uniform speed may, according to Marey, be obtained. The femur of a frog is fixed in a pair of forceps (P). A hook (O) connects the tendo Achillis with a long lever (*lm*), one end of which can make a tracing on the blackened disc. The tracing produced by this lever indicates the state of the muscle. A lever (*lc*) similar to this is connected with electrical arrangements for irritating the nerve. The movement of this lever indicates when the nerve is stimulated. The electrical arrangements for irritating the nerve are similar to those employed with Helmholtz's apparatus (see Fig. 9); only here the nerve is stimulated by an induction shock, produced by closing instead of opening the current in the primary circuit of the induction machine. One of the wires of the primary circuit is connected with the lever (*lc*). The other wire is fixed to a metal disc on the india-rubber membrane, which covers a drum or tambour (T) filled with air, which communicates with an air-bag through the tube *t*. (The tambour and its tube are shown isolated, T′ and *t′*.) A copper rod (*p*) is connected to the disc and the wire on the tambour. This rod projects behind the lever (*lc*); and when air is driven into the tambour, and its membranous covering is stretched, the rod (*p*) is carried against the lever (*l c*), and the primary circuit is thereby completed, an induction shock produced, and the nerve thereby irritated. The two levers rest upon a T-shaped arm, to which is attached the handle (B). By means of this they can be raised from the disc, or permitted to come into contact with it. When the clockwork has been set in motion, and the disc has attained its full speed, the levers are permitted to fall upon the disc. When at rest they describe two circles. Air is then forced into the tambour (T); the copper rod (*p*) is forced against the lever (*l c*); their contact closes the primary circuit of the induction machine, and thereby irritates the nerve. The lever is movable, however, and is pushed to one side by the rod. The moment that the nerve is irritated is, therefore, indicated by the commencement of a deflection from the circle described on the disc by the lever when at rest. The contraction of the muscle draws the lever (*l m*) to one side, and so a deflection is made from the circle made by this lever when at rest. The interval between the commencement of the deflections from the circles produced by the two levers when at rest indicates the time which elapses between the stimulation of the nerve and the contraction of the muscle. This time is shorter when the nerve is stimulated near than when it is stimulated at a distance from the muscle. The value in time of any portion of the circles produced on the disc by the levers is ascertained by registering the vibrations of a tuning-fork upon the blackened surface. The rapidity of the tuning-fork's vibrations is constant, and is, of course, known beforehand. (The reader is requested to study Fig. 12.) The two pairs of circular white lines are produced by the levers during a state of rest. The short curve at *n* was produced by deflection of the lever, *l c* (Fig. 11), and indicates the time when the nerve was irritated far from the muscle. The short curve at *m* was produced by deflection of the lever (*l m*), and indicates the time when the muscle contracted. The interval between the origins of the two curves can be readily ascertained by drawing two lines c_2 and c_3, from the centre to the circumference of the disc. This enables one to readily ascertain how many vibrations of the tuning-fork correspond to the interval between *n* and *m*. The pair of lines nearer the centre of the disc indicate the results of irritating the nerve *close* to the muscle; *n′* indicates the time when the nerve was irritated, and *m′* the commencement of the muscular contraction. The duration of this interval is estimated by counting the number of vibrations of the tuning-fork which it occupies. This can be readily done by drawing the lines *c* and c_1 from the centre to the periphery, as in the former case.

FIG. 12.



Tracings taken by Marey's myograph (see Fig. 11). The blackened disc rotates in a direction indicated by the arrow at C. T, Waves produced by the vibrations of a tuning-fork. (See text.)

Time will not permit me to show you to-day how the velocity of nerve-energy may be measured in human nerves. We must postpone this to the commencement of our next meeting. Let me say, however, that nerve energy travels faster in man than it does in the frog; in fact, as I have already informed you, it travels faster in warm- than in cold-blooded animals. While in the motor nerves of the frog the average rate is, according to Helmholtz, 90 feet per second, in the motor nerves of man Helmholtz and Baxt find it to be 111 feet per second.

The velocity with which nerve energy travels may be increased or diminished. 1st. Cold diminishes it; heat increases it. It is important to remember this. I often find that when the temperature is high, the energy travels along even frogs' nerves with such rapidity that the instrument which I have shown you fails to measure it. In such a case the rapidity of the nerve transmission may be readily diminished by placing a shallow vessel with a mixture of pounded ice and salt within the glass chamber containing the nerve. 2nd. A weak state of the nerve increases the velocity. It is quite easy to perform the experiment which I have shown you if you take well-nourished frogs which have just come from their native resorts; but when you have to deal with frogs which are weak from want of sufficient nourishment, you will find how difficult it is to get a result such as that obtained by us today. The velocity is so great in this case that it may be scarcely measureable. 3rd. A continuous electrical current has a decided influence on the velocity. We have already seen (Lecture III.) that the – pole of a weak galvanic current increases nerve excitability. The – pole of a powerful current, as well as the + pole of a current of any strength, lowers the excitability. Von Bezold has stated ("Über die Electrische Erregung der Nerven und Muskeln," 1851, pp. 109–155) that the rapidity of nervous transmission is always diminished by both the – and + poles of a continuous electrical current. Everyone has adopted Von Bezold's conclusion; but it is, nevertheless, quite erroneous, and of this I have assured myself often enough to speak with decision. Von Bezold was not aware of what I have already pointed out to you (Lecture III.)—to wit, that while the – pole of a weak current increases excitability, that of a powerful current lowers it. He, in ignorance of this fact, experimented regarding the effects of a galvanic current upon nerve transmission with a current derived from *seven* Grove's cells, and he permitted this powerful current to flow through the nerve *for at least three minutes* before observing its effects on the velocity of nerve energy. He arrived at the perfectly accurate conclusion that both poles of this current diminish the velocity. He was much struck by the fact that while the – pole increases nerve excitability, it lowers nerve conductivity. Had von Bezold probed the matter more deeply, he would have discovered that the powerful current employed by him *lowers excitability* as well as conductivity; and that a much weaker current—say, that from one small Grove's cell—*increases the conductivity* as well as the excitability. I show you a tracing which indicates the average result of numerous experiments performed by me regarding this interesting point in nerve physics. (See Fig. 13.) The three sets of tracings (I, II, III) show the results of one of my experiments upon a frog's nerve. The lowest (I) was taken before the nerve was subjected to the influence of the continuous current. The distance between the origins of the curves (at O and S) indicates the velocity of the nerve energy. The middle tracings (II) indicate the velocity in the same tract of nerve when under the influence of the – pole of a current derived from one Grove's cell. The highest tracing (III) indicates the rate when the same portion of nerve was under the influence of the + pole of the same current. The interval between O and S is less in II, and greater in III, than it is in I; indicating that the – pole increases, while the + pole diminishes, the velocity of the nerve energy. I will make a drawing to enable you to understand how this experiment is performed. (Fig. 14.) The gastrocnemius (*m*) and sciatic nerve (*n*) are arranged on the machine in the manner you have seen. Two pairs of wires (II and III), for irritating the nerve (see Fig. 9), are placed in contact with the nerve; and a third pair of wires (I), connected with a battery (one Grove's cell) for generating the continous current, is placed in connexion with the nerve as indicated in the drawing. When I″ is made the + pole, a portion of the nerve between II and III is affected in the manner peculiar to that pole; while if I″ be the – pole, this tract of nerve is subjected to the influence of that pole. This you will readily understand from my last demonstration. (Lecture III.) 4th. Marey has shown that curara diminishes, while strychnine increases, the velocity of transmission in motor nerves. Without doubt many other toxic substances exert an influence, but this interesting subject has as yet received little attention.

Fig. 13.

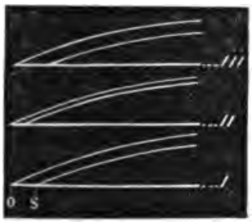
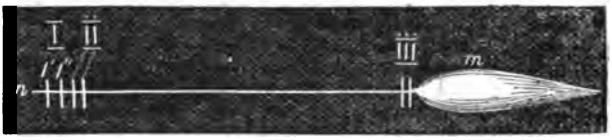


Fig. 14.



The power of a nerve to conduct its energy we may appropriately term its *conductivity*. When the nerve energy travels along the nerve with unusual speed, we may say that the conductivity is increased; and, in like manner, when the energy travels slower than usual, we may say that the conductivity is diminished. Having explained to you the significance of this term, you will readily follow me when I start this interesting question, Are the irritability and conductivity of a nerve always similarly affected?—in other words, if the irritability of a nerve be increased, will the conductivity of a nerve be increased too? and so on. If von Bezold's researches, to which I have alluded, were correct, then a negative answer must be returned to this question. But these researches are, as we have seen, misleading. Electricity, temperature, deficient nutrition, all affect nerve conductivity in the same way as they affect nerve excitability. Further investigation is needed ere we decide as to whether these properties of a nerve are always similarly affected. I believe we shall find that it is so. Such a result would simplify our ideas regarding this recondite subject. This interesting point is worthy of your attention. I shall open my next demonstration with something more about nerve conductivity.

Medical War Obituary in France.—M. Blain lately died of pyæmia in consequence of a wound on his finger whilst taking care of a German soldier. Dr. Ehrmann, son of Professor Ehrmann, of Strasburg, died of his wounds, received whilst tending the fallen in one of the engagements on the Loire. Dr. Bardinet, Director of the Medical School of Limoges, has lost his son killed in battle. Dr. Damicourt, who had joined the Army of the West, found a glorious death during the campaign. Dr. Milliot was killed whilst returning to the wounded lying on the field of battle at Froeschviller. He had walked some distance to get a supply of linen, and was hit by a piece of a bursting shell.

A Sketch
OF THE
INFLUENCES EXERCISED BY THE STATE OF HEALTH, PAST AND PRESENT, ON THE PRODUCTION AND COURSE OF DISEASE.

Excerpt from the Lectures on General Pathology delivered at University College, London.

By W. H. Walshe, M.D.,

Late Professor of Medicine and of Clinical Medicine, etc.

Gentlemen,—Continuing to-day our examination of Acquired Predisposing Causes of Disease affecting Individuals, I propose to direct your attention to a department of the subject which has scarcely, in its entirety, attracted the notice it seems to deserve: I mean the influences exercised by the past and present state of health of the individual on the development of disease. We will examine briefly the different manners in which the past and present physiology and pathology of the body prepare it for or guard it against diseases to the exciting causes of which it may be exposed. It is well I should premise that, though anything I may say will be in the main matter of direct inference from observed facts, I shall venture occasionally into the region of cautious conjecture. But in regard of any hypothetical statement, I will only solicit consideration, not enjoin belief, and freely allow you to forget for the nonce your part of the old maxim, *oportet discentem credere, edoctum dubitare.*

Pre-existing State of Health.

- I. Good: influencing
  - (*A*) Diathetic diseases—e. g., cancer.
  - (*B*) Acute specific diseases—e.g., typhoid fever; cholera; yellow fever; plague; syphilis.
- II. "Below Par": influencing
  - (*A*) Inflammations.
  - (*B*) Nervous diseases.
  - (*C*) Diathetic diseases.
  - (*D*) Acute specific diseases.
- III. Spoiled by actual disease existing or having existed.
  - (*A*) An old disease causes or increases tendency to a new disease.
    - (*a*) First and subsequent diseases the same.
      - (1) Recurrence a part of the fully-evolved disease.
      - (2) Recurrence almost a part of the fully-evolved disease.
      - (3) Recurrence not clearly a part of the complete disease.
      - (4) Recurrence certainly not a character of the complete disease.
    - (*b*) First and subsequent diseases different.
  - (*B*) A new disease cures an old one.
  - (*C*) Cure of an old disease induces a new one.
  - (*D*) Old disease prevents new disease.
    - (1) A disease prevents its like.
    - (2) One kind of disease prevents another kind.
  - (*E*) Past disease modifies new disease.
    - (1) Same disease.
    - (2) Other disease.
  - (*F*) Diathetic states modify intercurrent diseases.

In order to avoid the necessity of returning to the subject in other divisions of the course, I will take up to-day the connexion of past health with subsequent disease in all its possible varieties—*causative, preventive, curative,* and simply *modifying.* The possible contingencies are shown in the table I place before you, and on its different heads I now proceed to comment.

At the moment of his exposure to the direct exciting causes of disease, the health of any given individual can only by possibility be in one of the three following conditions: (I.) it may be *good;* (II.) it may be *below par,* no visible, tangible diseased actions going forward; or (III.) *actual disease* has set its typical mark on the organism.

I. Health good.—It may on first thought appear sufficiently absurd to speak of a good state of health as a predisposing cause of disease; although even in popular phrase and non-professional adage there exists some warranty for the notion. How common, in truth, is it to hear the remark from patients laboring under some grave malady, "I never was so well in my life as when first seized with the symptoms of my complaint." "'Twas the common observation of my friends, they had never seen me looking so well"; *et alia similia.* Now there is often some show of truth in seeming paradoxes that have received the stamp of popular belief. Is there, or is there not, any in the present instance?

(*A*) *Diathetic Diseases.*—Among diathetic diseases a ready illustration presents itself in the history of cancer. It is an unquestionable fact that cancer occasionally not only makes itself manifest, but actually originates, while the patient is in robust health; and this not only judging from the individual's sensations and general appearance, but from close investigation of the functions and physical state of all the organs. The diathesis may be for an undetermined length of time active, while no appreciable deviation from the standard of health exists. Grant that the organ about to become the nidus of cancer is one non-essential to life, or feebly essential to life—say the mamma or the uterus after the child-bearing period,—and such maintenance of the general health, before and at the very earliest periods of local manifestation, becomes, I affirm, rather the rule than the reverse.[*]

(*B*) *Acute specific Diseases.*—From many different points of view, it is a question of great importance to determine whether seizure by epidemic, infectious, and contagious diseases is obstructed or promoted by an existing good state of health.

(*a*) Look first at the history of *Typhoid Fever*. Who are its ordinary victims? Young and healthy persons, recently arrived in large towns from the country, the flush of rural vigor often as perceptible on their cheeks as while they still trudged their native fields.[†] In 420 cases of typhoid fever collected by Dr. Davidson, only 10 were found in an emaciated or unhealthy condition, and "almost all, as far as could be ascertained, were engaged in their ordinary occupations at the time of seizure." Every well-ordered record I have met of the post-mortem examinations of typhoid patients proves the extreme rarity of disease of any other kind in their bodies. Strength of constitution, and total freedom from exhaustion of all kinds, were quite as common as the reverse among the patients furnishing the groundwork of the model treatise of Louis.[‡]

(*b*) *Cholera Asiatica* furnishes yet more striking evidence of a similar kind. In various epidemics, dissection has not only proved that the intestines themselves were perfectly free from pre-existing disease, but that the complaint spared those affected either with acute or with actively progressive chronic disease; while it had, on the contrary, seized on people in a state of perfect health, or, at least, in the retrograde stages of chronic affections.[§] There are constantly to be seen in the Calcutta hospitals the healthiest specimens of the vigorous Affghans, noted among Indian races for power and fine coloration. A fact not unworthy our passing notice is, that Alexis St. Martin, on whose perforated stomach Dr. Beaumont instituted his celebrated experiments, was "in the midst of the cholera epidemic in Canada, and withstood its ravages, while hundreds around him fell sacrifices to its fatal influence."[‖]

And hence I entertain little doubt, paradoxical as it may seem, that, at a time of outbreak of cholera in any given community, it would be safer on the part of insurance companies to accept proposers having a distinctly demonstrable disease (not directly tending towards death) than those perfectly healthy models whom it is their usual ambition to secure.

(*c*) *Yellow Fever.*—Mostly, one of the most faithful historians of yellow fever, says the most likely victims are "that sort of strong, full, youthful people with tense fibre, who in England are said to resemble the picture of health."[¶]

(*d*) *Plague.*—So, too, plague repeatedly falls upon the young and healthy; though it cannot of course be questioned that oftentimes the disease follows, like typhus, in the wake of famine, and then must be supposed, as matter of necessity, to prey in the main upon enfeebled and exhausted organisms. It is not merely a matter of popular faith, but a notion accredited by so competent an observer as Clot Bey, that wounds protect against this disease.

(*e*) *Syphilis.*—Look, again, at facts concerning syphilis. Those who have most experience of the disease admit that the intensity of the manifestations of the virus is certainly as great, and often greater, in the robust and thoroughly strong than in the weakly and debilitated. Just as in the remarkable experiments of Hannover on the muscardine disease in the silkworm, the strongest worms most readily took the disease by inoculation, and produced the largest quantities of inoculable material. So, again, we may appeal to some curious facts in the evolution of scabies. The ordinary incubation-period in childhood runs to about four or five days; but if the child be weak and feeble the period lengthens considerably, while in the very strong and robust it shortens greatly, not exceeding a day or two.[*]

Admitting, then, for argument's sake, that a state of good health acts attractively in regard of the poisons of certain of the acute specific diseases, what explanation of the fact can be tendered? I presume this is a problem incapable of solution at the present day; but it may reasonably be surmised that the blood in its normal condition may be more favorable to the process of zymosis (whatever this may be ultimately proved to be) than when in a state of more or less marked alteration. At all events there are no established facts that I know of hostile to such a view. As to explanation of grave diathetic disease choosing for its nidus a healthy, in preference to an unsound, organism, I have not even a surmise to place before you.

II. Health below par.—The condition of health designated familiarly by the phrase "below par" is one more easily understood than defined. Whatever be the cause of this state (overwork with the brain, sexual abuse, sleeplessness, prolonged grief, excess of bodily exertion, insufficient or unwholesome food, &c.), the general debility, feeble functional force, sluggishness of nutritive acts, and failing weight that characterise it, are supposed to constitute a sum total giving those exhibiting it a strong proclivity to diseases of all kinds. It is supposed that such persons will become the subjects of any given disease under the influence of an amount of the exciting cause which would wholly fail to produce it in perfectly healthy people. This notion is not only matter of popular creed, but has over and over again, and even in some of the most recent monographs on epidemic diseases, been authorised by medical writers. Now there is no danger in affirming that the proposition stands on no evidence, statistical or other, worthy of serious attention. Observers will doubtless be ready to come forward and affirm, in a more or less decided fashion, that there has been a great excess of persons whose health had long stood "below par" among their patients suffering from various classes of disorder. But, admitting this to be true, does it prove much? I rather think not. For suppose any given physician has had among his patients twice as many persons whose health, previous to the occurrence of downright disease, had been "below par" as persons of sound and healthy antecedents, it might be, for aught he know to the contrary, that the population furnishing these patients contained amongst it four or five times as many individuals whose habitual health was "below par" as sound and good; and if this were the case, the "below par" state would actually play the part of a protective agent. Or, to approach the question from another direction, who has ever really proved that the occurrence of visceral inflammations is promoted by feeble vital activity? If inflammation .occur in such persons, doubtless a particular character is impressed upon it—it assumes a low or asthenic type. But the point is, to show that of one hundred persons in rude health a less proportion will suffer, under the same amount of exciting cause, from inflammation than of one hundred others in all respects alike, except that their standard of health had undergone more or less serious reduction. Now, this has never yet been done.

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[*] The original statement of this view was, as I believe, made by Bayle in the early part of this century. It was adopted and taught by Recamier, and I heard it first from the lips of his pupil, Trousseau.

[†] Not only is the number of seizures highest among such persons, but the mortality among those seized is disproportionately high. Thus Chomel found 31·37 per cent. of deaths among patients who had spent less than twelve months in Paris, while it fell to 6·66 among those domiciled there upwards of two years.

[‡] Affection Typhoide, vol. ii., p. 456, ed. i.

[§] See, among other evidence, that of Gairdner, Edin. Monthly Journal, July, 1848.

[‖] Beaumont: Experients &c., p. 20.

[¶] Bartlett on Fevers, p. 459.

[*] Cazenave: Diseases of the Skin (English translation), p.

(*B*) Lowered general tone and enfeebled vitality will probably favor the outbreak of nervous diseases. Thus, shock to the affections, by lessening appetite and perverting digestion, establishes a state of general weakness, which facilitates the occurrence of hysteria; but, on the other hand, the most violent and persistent forms of the complaint are often witnessed in women powerful in frame and vigorous in health.

(*C*) Nor is the evidence really more convincing in regard of diathetic diseases, as a group,—though, I confess, more staggering in regard of some of the number, and overwhelming in regard of others.

Take so-called "Bright's disease," for instance (the diathetic and non-local nature of which affection has, as you know, long been professed by me*), when it occurs in a quasi-idiopathic, and acute form, and when the hour of its active origin may be fixed to a nicety. Now although, as a necessity of the diathetic hypothesis, it must be conceded something has gone intrinsically wrong in the blood-making and histogenetic processes before local manifestations make themselves felt, the subjects fixed upon for such intrinsic defective action are not necessarily people "below par." On the contrary, the first symptoms may make their appearance in the midst of a state of apparently irreproachable health in vigorously constituted males. Nor is there a title of evidence to show that a "below par" state is a favoring condition of the development of cancer, or of gout, or of glycohæmia. As to the latter affection, I have more than once known its first clinical indications appear in country gentlemen while pushing the sports of the field to the uttermost point, and eating, drinking, and to all seeming, as regards their subjective and objective well-being, digesting in perfection.

What, under the present aspect, is to be said of tubercle? It has long been a favorite theory of practical physicians that there exists a special form of association of slight functional disturbances, making up a "premonitory stage" of consumption. In this stage, preluding the actual deposit of tubercle, some deep fault or other was held to affect primary digestion and the blood-making and tissue-making processes. Amid much that was hazy, vague, or even erroneous in the reasonings and the imaginary observations of our predecessors, there stood out the practical proposition, that before the occurrence of downright physical signs, the perfection of health had departed—the diathesis was, if I may use the expression, *up and doing*. By some a feeble effort was further made to frame groups, more or less fanciful, of dyspeptic symptoms (some form of "foul tongue" invariably holding a leading position among them) putatively significant of the inevitably coming pulmonary consumption.

With the progress of things efforts have tended to give greater precision to these rough notions. And one of the notable results appears in the desire to prove that the so-called "premonitory stage" constitutes in very fact the "true first stage" of the disease. As far as the nomenclature goes, there is nothing in the innovation to cast a slur on the acumen of our forefathers. The whole affair is, in truth, a mere dispute of words. For those observant predecessors held that the "premonitory stage" was a condition of things involving, as a necessity, further evolution—advancement, in a word, to the fully formed disease. They believed, in other terms, that the dyspeptic group they marked "*premonition*" was, as matter of fact, "*incipient actuality.*"

The real difference between the combatants for a "premonitory" and for a "true first" stage, consists in the more precise notion the advance of knowledge has enabled our contemporaries to give of what actually constitutes the one or the other. Dwindling fat, failing weight, impaired strength, modified temperature, and perverted innervation—the incipient group of the pathologist of the present day—is a definite combination, announcing, in the majority of cases, the commencing mischief of tuberculisation, destined to run its habitual course.

Now I have no hesitation in saying that I accept the doctrine of those who teach that the group of conditions just put together announces, not the imminence more or less sure, but the actual presence, of the disease. But the difficulty remains, that it is not now, nor conceivably will it ever become, possible to fix the moment when the actual deposition of the first particle of tubercle occurs. Where is the demonstration that in the "premonitory" or "true first" stage (call it which you will) actual tubercle is not as early in the field as the asserted evidence of the stage itself? To demonstrate that it is *not* would require—

First, that the characters of the said stage were solidly fixed and capable of positive diagnosis.

Secondly, that it was shown the like combination of characters was foreign to the outbreak of all other diseases. In the present state of knowledge, we are not able to affirm that everyone who loses fat, undergoes a change in the distribution and activity of his calorification, and gets weak, is necessarily on the high road to tuberculous destruction of his lung-substance.

Thirdly, that, through accidental contingencies, deaths should occur in goodly number during this stage, so that in process of time an imposing mass of post-mortem evidence might be appealed to, proving in such cases the uniform absence of a particle of tubercle.

I need hardly say that nothing of all this has ever yet been established or ever yet been done.

But, gentlemen, in glancing at this moot question in the present place, I have wandered into a sort of digression. For, in point of fact, it matters little in the investigation before us whether the "premonitory" or "true first" stage view is destined to carry the day; our point is to ascertain whether the earliest manifestations of morbid activity, however the group be designated, that culminate in phthisical destruction, set in more frequently and more readily in persons whose health is "below par," or in those in whom it is "good." Of course, we know what the unhesitating answer would commonly be to a question of this sort. Probably it may be looked on as a piece of daring medical heresy to utter a word calculated to shake the time-honored dogma of the intimate and necessary dependence of tuberculous disease on pravity of constitution—a "below par" state induced by over-toil, excesses of various kinds, wearing anxiety, &c. But many a long-accredited notion has proved but a fable in the end; and the present dogma seems to me to rest on no better basis than a mixture of imperfect theory, preconceived ideas, and loose observation. The theory is, that the state induced by over-toil, &c., must be favorable to the nutrition vices concerned in the tuberculising process. But suppose I choose to assume the very reverse of this, and say that, for aught we know to the contrary, the vitally deteriorated and chemically altered conditions of the nerves and blood of an overworked and worn man may be vitally and chemically antagonistic to, instead of promotive of, the *specific* perversions belonging to the outbreak of tuberculisation, is my proposition less tenable than that of my adversary? Not a whit. As regards preconceived ideas and loose observation, the ordinary fashion of proceeding is this: a man becomes consumptive; he was dissipated, or he was over-anxious and over-worked, &c., and out comes the sapient self-gratulation, "Ah! I knew it; I always said it; poor fellow, he was so overdone," &c.; while the thousands who have been similarly overworked, and who have nevertheless gone to their graves free from a trace of tubercle, are conveniently forgotten. No; that there is something wrong in the so-called "below par" state cannot for a moment be doubted; but whether that something wrong struggles to promote, or tends to prevent, the diathetic disturbances belonging to tuberculisation, is at the present day an unsolved mystery.

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* THE LANCET, excerpt from Clinical Lecture, 1849.

As to Acute Specific Diseases and their alleged attraction for organisms in a "below par" state of health, some reasons have already been given for questioning the perfect correctness of the common belief. You have heard evidence tending to make it probable that the proclivity to receive these diseases is greatest among the healthy. At all events, the disposition to appropriate the floating poisons of epidemic diseases seems quite as marked among the strong as among the careworn, exhausted, and underfed. The usual argument that cholera, for example, is attracted by a deteriorated condition of health, because it so largely destroys the poorer classes, seems, when sifted, to carry with it but little weight. For, in the first place, it has not, so far as I am aware, been shown that the number of choleraic deaths is seriously greater, *in proportion to their numbers*, among the poorer than among the richer orders. Next, it is forgotten that, though a "below par" state of health, brought on by the use of insufficiently reparative food and by privations of various kinds, is escaped by the rich, they are exposed to the risks of many other quite as active causes of weakened vital energy. Thirdly, the much greater chance of effective introduction of the poison occuring among the poor from overcrowding and allied social mischiefs, has not, it would seem to me, been accorded its due place in the argument.

III. Actual Disease exists or has existed.—Under this our third chief head lies the main interest of the subject.

(*A*) First, a past disease may cause, or increase the tendency to, a fresh disease; and under these circumstances the first and subsequent diseases may be the same, or they may be different.

When any given disease reappears in the same person, after the time for so-called *relapse* has passed, it is said to *recur*. Now, such "recurrence" may be (1) part and parcel of our notion of the disease in its complete and perfect evolution—a sort of necessity of its being. Epilepsy and genuine dynamic asthma offer examples; for though instances are to be found recorded of single attacks in a life-time of each of these complaints, their authenticity it seems to me may reasonably be doubted; and at all events, if real, such cases unquestionably must take a leading place amongst the *mirabilia* of clinical practice. But conceding, you may say, that recurrence *is* a part of these affections, how is it to be understood that past seizures not only stand as the predecessors, but act as the promoters, of new seizures? It seems to me difficult to doubt that in one and the other case the series of nervo-dynamic disturbances concerned, having been once gone through, is more easily reproduced; the part has been, as it were, rehearsed, and it is more easily played. How else can we account for the fact, that in proportion as attacks are repeated they are more easily excited?—that a cause at first insufficient to disturb the nervous equilibrium to the length of creating an attack, by-and-by does this with facility? Thus, too, I would, in part at least, explain the fact in the natural history of epilepsy, that, "as the disease continues, the tendency is for the attacks to increase rather than to diminish in frequency."*

The same sort of influence may be traced in cases (2) where recurrence, though frequent, cannot be held essential to our idea of the perfected disease: it is felt, I think, for example, in hysteria and gout. True, you may urge, a man gets a second attack of gout, not because he has had a first one, but because, untaught by the past, he continues to imbibe beer, Burgundy, and port, eats portentous rations of nitrogenous food, and takes no exercise. So he does, I question not for a moment, as a rule; but sometimes the very slightest deviation from a standard and fixed regimen will suffice, in the case of a previous sufferer, to stir the disease into activity, and induce a *fresh* attack, which would have proved wholly impotent to *originate* the complaint. Is there not something in these cases assimilable to hereditary influence? and may not one attack be looked upon as the actual or potential parent of others?

In a third class of cases (3) recurrence is not clearly a part of the completed disease, yet a first attack is often followed by others without the intervention of the original and intelligibly efficient (it may be specific) cause. To me the power of the impress left on the system by a first attack, for instance, of chorea or of laryngismus stridulus, in promoting subsequent seizures seems a proven fact, as far as such a form of fact is capable of demonstration. But if you choose to doubt this, as perhaps you will, what say you of the case of ague? Once ague has been produced by its specific cause, paludal poison, recurring seizures may take place wholly independently of malarial influence of any kind. Emotional excitement, fatigue, slight intemperance, and a host of other influences, utterly powerless as *originators* of intermittent fever, suffice to cause its *reappearance*. Nay, further, may we not reasonably regard one paroxysm as in a certain sort the cause of another or of others? What is the idea of breaking the habit of having a paroxysm but an admission of the reality of such mode of causation. We had a man with tertian ague some time ago in the wards who was in the habit of returning to his bed every second day at 11 A.M. to "have his fit." A shrewd old nurse took upon herself to keep him out of bed, and occupy his mind one morning, when the paroxysm was due; he escaped that morning, and the fits never returned.

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* Reynold's Epilepsy, p. 162. 1861.

Lastly, there are affections in which (4) recurrence is most positively not a necessary element of complete evolution. Acute rheumatism may be cited as exemplifying this class of diseases. The frequent recurrence of acute rheumatism in the same person seems to me only explicable on the supposition that some perverted condition of blood and tissue has been left behind by any given attack which makes the system the easier prey of the directly exciting cause of others. Erysipelas is another example of the same kind. And the readiness with which some people have attack after attack of pneumonia seems a further illustration. It may, no doubt, be said that in all such cases the tendency to repetition depends on some physiological defect of the individual born with him, and assimilable to peculiarity of feature, of form, or of mind; but there will always remain in support of the other view the indubitable truth that each recurrence makes another recurrence producible by a less amount of cause than its predecessors. Number and facility of production of attacks increase in a sort of uniform ratio.

(*b*) Secondly, a past disease of one kind is said to be the possible efficient cause of disease of another kind.* Thus typhoid fever has been said by Louis to pave the way for tuberculous disease of the lungs,—hypothetically assigning, as the immediate cause, the prolonged pyrexia of the typhoid affection. There can be no doubt that some persons, demonstrably sound in all respects before the occurrence of the fever, have scarce imperfectly recovered from this, before pulmonary mischief, culminating in destruction of tissue, and associated with local and general symptoms identical with those of phthisis, sets in. I have witnessed this in my own practice, both public and private. But the query is whether the destroying material in the lung is genuinely tuberculous, or composed of aplastic exudation-matter of "typhoid" type, and more or less closely identical with that poured into the areolar tissue beneath the patches of Peyer. Besides, we must not forget the intense difficulty which we have often experienced in the wards together) of affirming with surety whether a given pyrexial case is one of typhoid fever or of acute pulmonary tuberculisation. That cases of the latter kind have actually been described as examples of the former is certain. It is probable the form of association contended for by Louis between typhoid fever and true tubercular phthisis, is a reality; but the examples of its occurrence are as probably few and far between.

Syphilis, when become a diathetic vice—that is, in its secondary and tertiary periods,—has been held to promote the occurrence of, nay, unaided to cause, phthisis. I have seen somewhere—where I cannot at this moment recall—an attempt to prove the connexion numerically. But I well remember that this attempt went no further than showing that many persons who had had syphilis eventually became phthisical! And I know that the etiological doctrine came into vogue at a time when very little, if anything, was practically known of the power of tertiary syphilis to destroy the lung by specific infiltration of its own kind. The alleged relationship requires, I consequently think, to be submittted to closer investigation than it has yet received before we accept it as a fact.

Again, syphilis has been said to act as the direct cause of cancer. In answer to queries sent round to the medical practitioners of France many years ago by M. Le Roy, one out of every five cases of cancer was ascribed to syphilis. This, also, seems to me a view open to revision. If syphilis be really so potent in generating cancer, how comes it that, as authoritatively shown by Parent Duchâtelet, prostitutes prove but little prone to cancer of the very organs that are the first recipients of the poison?

Another illustration is found in the production of phthisis by diabetes; but I scarcely know if this can be considered a perfectly just one. For, in truth, there seems in some obscure way a connexion in the chemistry of phthisis and of diabetes, tending to prove that the pair cannot be looked on as wholly different diseases. Sugar exists in the blood to an unnatural extent in the early stages of phthisis, and its appearance in the urine is an occasional clinical fact. Possibly the two affections may be linked together through irritation and perverted function of the vagus nerve.

(*B*) *A new disease cures an old one.*—(1) Instances of this form of influence may be quoted where the cure is permanent or only temporary. The first kind of effect is exemplified by the cure of neuralgia of the fifth pair by erysipelas of the face, and by the rapid and unexpected termination of lupus with hypertrophy under the same influence.* Temporary cure is shown by the total disappearance of sugar from the urine, in even the worst form of hereditary diabetes, during the course of typhoid fever; of this we have had a remarkable example in the wards. Carbuncle, too, has been known to put a stop to diabetes. Insane patients have lost their insanity, passingly, during an attack of Asiatic cholera. An attack of small-pox will, *pro tempore*, and for a short while after its own convalescence, absolutely remove inveterate psoriasis of years' duration, leaving the skin perfectly smooth and free from scaliness. This singular influence of diseases on each other we have also seen exemplified in the hospital.

(2) The extension and aggravation of an old disease may relieve the secondary effects of that disease: whence the paradoxical truth, that a patient may be clinically in a better state because anatomic-

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* No reference is of course intended here to secondary affections more or less necessary parts of a completed evolution of a primary disease. So-called "Bright's disease," following on scarlatina, would not be entitled, for instance, to be considered under the present head.

* Cazenave: Diseases of the Skin (Eng. trans.), p. 255.

ally in a worse one. Here is an illustration: A woman with cancer of the uterus began to suffer from diminished flow, eventually suppression, of urine; anasarca rapidly set in, followed by uræmic coma. Death seemed imminent. At this juncture, sudden relief of all these symptoms, with copious flow of urine, occurred. Both ureters had been blocked up with cancerous matter; and (as subsequently shown post mortem) relief was afforded by the extensive spreading of deep ulceration, whereby a passage had been opened above the site of the obstruction.

(*C*) *The cure of an old disease may induce a new one*, whether the first be an *artificial* or a *natural* morbid state. Thus blisters, issues, or setons, long kept open, become a condition of artificial disease to which the economy grows familiarised, and which cannot be removed without ill-effects ensuing, either in the form of a return or increased severity of that for which they were originally employed, or of some ailment wholly new.

Illustrations may easily be found of the evil arising from the cure of *natural* diseases. Thus the cure of an ulcer in the small intestine in the course of phthisis has been known to cut short life at once through fatal obstruction of the bowel; for the contraction, inseparable from the healing process of such ulcers, will sometimes go further than desirable, and gravely reduce the calibre of the intestine. Whether this has ever occurred as the ultimate term of cure in typhoid ulcers is more than I know. I have not seen it. I believe I have observed very great aggravation of symptoms in two instances of enormous "simple chronic ulcer" of the stomach at a time when the ulcer, as appeared from post-mortem examination, must have been undergoing cicatrisation. In one of these instances the annular contraction of the exudative cicatrising material had given a sort of hour-glass shape to the stomach, and evidently the ingesta must have had notable difficulty in making their way from the cardiac to the pyloric side of the constricting band. Better far for the patient had Nature left the ulcer unhealed. Again, death has been produced in chronic dysentery and in anomalous chronic ulceration of the rectum by the curative process of ragged ulcers going too far, and leading to a complete internal block.

In these instances Nature is the curer; the physician is no more responsible for the evil than commendable for the good of the healing process. But there are diseases which it is said to be dangerous to cure, the faculty of curing them being within our reach. Chronic skin diseases take place in this list; but I cannot help thinking the question is not altogether settled. Persons who have no bias one way or other will find, I think, as I have done, that (1) the most serious and old-established skin diseases have sometimes been cured without ill results of any kind; (2) the cure of similar affections, when slight and but recently developed, has been followed (so closely that the connection of cause and effect seemed hardly deniable) by more or less grave illness. There must be then a *tertium quid* beyond the disease, and the cure, bringing about the one or the other result, and what that *tertium quid* is remains to be discovered.

The removal of hæmorrhoids which, at the moment, may save life, and once more make that life enjoyable to a chronic sufferer, may nevertheless do grave ulterior mischief in persons disposed to internal congestions, cerebral and other. And this danger will arise just in the direct ratio of the local and general good done by the removal. The greater the exhaustion from bygone pain and draining hæmorrhage the readier the rebound, the more active the renewed blood formation, and the greater the proneness to visceral stagnation.

The propriety of operating for fistula in ano in cases of phthisis has long been matter of dispute. Your Professor of Clinical Surgery decides that "where the *symptoms* of tubercular disease are present, the operation for fistula is not allowable."* His objection seems essentially to hinge upon the difficulty of getting the new wound to heal. But suppose there are no very decisive *symptoms* present; suppose the pulmonary affection is marked by physical signs alone; suppose the general health is as yet but slightly impaired, and the wound from the operation prepared to heal readily, what then will be the effect of its performance on the lung disease? Sometimes none of a well-defined kind; sometimes, on the contrary, an advance in area and stage of the physical signs, and a development of local chest symptoms hitherto unfelt. Obviously here the cure of one affection has, in some mysterious way, not created, but given activity to another.

(*D*) *An old disease may prevent a new disease.*—A disease may either (*a*) prevent its like, or (*b*) one kind of disease may prevent the occurrence of another kind.

(*a*) Under this category of like preventing like are to be ranked diseases one of whose characters is that a first attack confers immunity from a second. We may begin by enumerating them as—variola, scarlet fever, measles, yellow fever, Aleppo evil, whooping-cough, true plastic croup, varicella, vaccinia, syphilis, typhoid fever, plague. But the amount and surety of immunity vary greatly with these different affections.

(1) As a rule, to which there are but few exceptions, this form of immunity is one of the distinctive characters of diseases transmissible by inoculation, contagion, or infection. (2) The immunity is not absolute in regard of any one of them. Even yellow fever may recur in the same individual: in a collection of 27,000 cases there were found thirteen examples of double attack;† and it must be taken into consideration that a goodly proportion of those thousands of persons had never again been exposed to the causes of the disease. And though the most advanced natural historians of syphilis of the present day endeavor to prove that one effective inoculation is absolutely protective against any other, still a genuine second indurated chancre has been observed. Certainly, if the second sore be contracted within any short period after the first, its course is commonly much modified. (3) The immunity conferred by a first attack may be limited to part only of its anatomical elements: thus parents who have had scarlet fever in infancy may, on the occurrence of the disease in their children, have a form of specific febrile sore-throat without the cutaneous rash. (4) The duration of the immunity varies; it may subsist for a lifetime, last a period computed at about seven years (vaccinia), or in some epidemics endure for a short while only. (5) Diseases of this class are not often seen in old age; for, if susceptibility to suffer from the special poison

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* Diseases of the Rectum, by R. Quain, p. 118.

† Association Journal, Sept. 1854.

exist in an individual, it exercises its influence in youth, and thus protects him subsequently.

(*b*) One kind of disease prevents the development of another kind—the class of mutually repulsive, incompatible, or antagonistic diseases. The number of diseases exercising this form of influence on each other, either as matter of demonstration or of probability, is very considerable. A few examples must suffice for the present.

Chronic diseases, as a class, *if in activity*, antagonise continued fever and cholera. Long since it was shown by Esquirol that epileptics suffer in small proportion and with slight severity from typhus, when exposed to the same exciting causes as healthy persons. Acute diseases antagonise typhoid fever: Louis has shown that typhoid fever never originates in the course of any acute affection. Ague and the paludal cachexia (as first shown in 1812 by Dr. Wells) almost completely prevent the development of continued fever and of phthisis; they enable the body, too, to resist more effectually the effects of alcoholism. Heart diseases with cyanotic tendency, aneurism, and cancer antagonise tuberculous disease. Acute gout and acute articular rheumatism are incompatible; as are likewise the specific pyrexial skin diseases.[*]

But it is doubtful whether this incompatibility is ever absolute. Thus, I have several times seen cancer and tubercle in the same organ: it is alleged both may form within the area of one and the same tumour; but cancerous substance, infiltrated with granular fat, looks very like tubercle, and probably has been mistaken for it. Again, you have seen in this hospital variola and scarlatina advancing together on one and the same skin.

In estimating the reality of alleged repulsion, the question of age is never to be lost sight of. Thus, the age at which aneurism becomes common is past that at which tubercle is of frequent occurrence. This alone is a reason why the two should not often be found together.

(E) *A past disease modifies a new disease.*—A given disease having existed influences the mode of appearance, the course, and the sequelæ of some other disease, for a season, or for a lifetime. The two diseases under these circumstances may be (*a*) the same absolutely in nature; (*b*) essentially but not absolutely the same; (*c*) different.

(*a*) The first variety may be illustrated by the effects of the virus of syphilis. A successful inoculation having once taken place and a true indurated chancre having followed, the production of a similar sore under the influence of new inoculation is held to be almost impossible, and the power to generate effective virus by any subsequent inoculation is believed to be lost. Any subsequent disease produced is therefore modified in course and in constitutional influence; and may be spoken of as *syphiloid* disease, rather than syphilis.

(*b*) The second variety is exemplified by the physical modifications occurring in a second attack of certain complaints as a consequence of anatomical changes left by a first. Thus in a second attack of acute pericarditis, if complete agglutination of the two laminæ of the sac has been effected by the first, or even if there be close general adhesion, the stages of the disease cannot be fully evolved: effusion of serosity becomes physically impossible. And this is not a mere matter of anatomical interest; for very certainly copious effusion may not only *per se* imperil, but actually destroy, life, through mechanical interference with the heart's action. From this point of view, any subsequent attack of pericarditis may prove less threatening to life than the original one.

(*c*) The influence exercised by vaccinia on the progress of variola, converting a well-defined disease into one of less complete evolution and of less certain course, illustrates our third variety,—the two viruses, whatever may be the eventually accepted theory as to the original relationship, being, at the period intended in our argument, wholly different.

(*F*) *Diathetic states influence intercurrent diseases.*—Every day's clinical practice exemplifies the reality of this influence: as a ready exemplification look at the variety of forms assumed by bronchitis under the influence of the diathetic complaint with which it chances to be associated.

But suppose a grave diathetic affection has existed a longer or a shorter time in a person seized with an acute specific disease, what comes of the collision (if I may use the word) of the two blood-poisons, that of intrinsic origin worked out by the diathesis, and the extrinsic one derived from without? That the newly arriving acute specific disease may seriously modify the old-standing diathetic complaint, we have already seen proved by the actual cure of saccharine diabetes for the time being under the influence of typhoid fever. Hence the acute specific disease proves the more powerful. But is this always so? May not the converse action be possible, and the diathetic state stamp in some fashion its modifying impress on the acute specific disease? From this point of view three forms of influence seem *à priori* conceivable. First, the diathetic blood state may render the individual proof against the extrinsic poison, just as vaccinia protects from variola. Secondly, it may leave wholly unchanged the receptive and zymotic faculty of the individual in regard of that poison. Thirdly, it may modify the course and symptomatic evolution of the acute specific disease.

Now, as far as my observation goes, the third and last form of influence is that which is really developed. We had a very remarkable illustration of the modifying influence exercised by the diathesis of Bright's disease on the symptomatology of typhoid fever under observation at the hospital some while since; but as we had a clinical conference on the subject at the time,[*] we need not now pass in review the series of slight, but distinct, aberrations from the standard type noticed in the symptoms of the typhoid fever.

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[*] Mr. Ambros Blacklock, surgeon-major of the Madras Army, believes "that persons who have had well-marked cow-pox at no distant period, say within five years, are fully protected from Asiatic cholera, as well as from small-pox." Again, he says that after twenty-three years' residence in India, "where vaccination makes but slow progress among the people, and pock-pitted persons are to be seen in abundance, and where I have had a large number of cholera cases to attend to from year to year, I cannot remember ever having seen or heard of any person marked by pits of small-pox being affected with Asiatic cholera."

[*] *Medical Times and Gazette*, June and July, 1855: "Reciprocal Influence of Coexisting Diathetic and Acute Specific Diseases."

AN ABSTRACT
OF A
Course of Lectures
ON THE
INTERNAL DISEASES OF THE EYE AS SEEN WITH THE OPHTHALMOSCOPE.

Delivered at the Royal London Ophthalmic Hospital, Moorfields.

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LECTURES I. & II.*

THE OPHTHALMOSCOPIC EXAMINATION OF HEALTHY EYES.

Gentlemen,—In examining an eye with the ophthalmoscope, it is generally necessary to have a dark room† and a bright, steadily-burning oil or gas lamp. The best gas lamp is that employed at Moorfields, which has an Argand porcelain burner perforated by small apertures, and closed underneath by fine wire gauze, which regulates the draught and steadies the flame. It is attached to a movable arm permitting of universal movement in all directions. The burner is to be covered only by a chimney, without a globe. In place of gas, an oil or paraffin lamp may be employed.

In the selection of a portable monocular ophthalmoscope, I think our choice lies between the instruments of Liebreich and Coccius. The former (Fig. 1) consists of a concave metal mirror of eight inches' focal length, having a small central aperture; behind the mirror is a clip to hold a convex or concave lens. In Coccius's instrument (Fig. 2) the mirror is plane, and there is a biconvex lateral lens of five or seven inches focus held in a clip and mounted on a jointed bracket. It is to be used in the following manner:—The lateral collecting lens is to be turned towards the flame, which should be somewhat more than twice the focal length of the lens from the observer. The mirror is then to be set somewhat slantingly to the lateral lens and the eye of the patient. If the mirror is properly adjusted, we shall obtain, if we throw the reflection on the palm of our hand or the cheek of the patient, a bright circle of light, with a small dark central spot, which corresponds to the opening in the speculum. Liebreich's is an excellent instrument, and, as it is somewhat easier to use, is more generally employed; but I rather prefer that of Coccius, chiefly for the following reasons: the lateral lens enables us to alter the focal length of the mirror and the intensity of the illumination. Moreover, the reflection is much less, which is of much importance when we examine eyes whose pupils are very small.

Fig. 1.

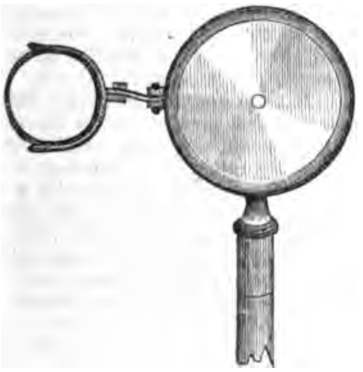
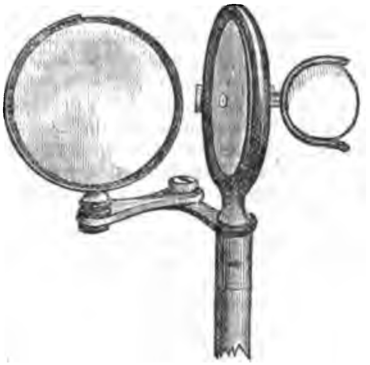


Fig. 2.



In making an ophthalmoscopic examination, the surgeon seats himself directly in front of the patient, at a distance of from 14 in. to 18 in. He then places the mirror, held in his right hand, close to his eye, and turns it slightly towards the flame; so that the rays from the latter may be reflected into the eye of the patient, whose pupil will then be brightly illuminated, and present a brilliant red glow. The surgeon may now avail himself of one of two methods of examining the details of the background of the eye—viz., the direct or the indirect mode of examination. With the former he obtains an erect image of the fundus; whilst with the indirect the image is reversed. He should be equally well versed in both modes of investigation, to the explanation of which we must now pass on.

The examination of the actual inverted image, or indirect method.—The pupil having been well illuminated with the mirror, the patient should be told to look somewhat to the left (if his right eye is under examination), at the surgeon's right ear, and *vice versâ.* In this way the optic disc, which is situated to the inner side of the optic axis, is brought directly opposite the surgeon's eye. The latter will now at once notice that the reflex is no longer bright red, but of a whitish-yellow tint. When this change of color is obtained, the surgeon should take the rim of a biconvex lens (termed the object-lens), of 2 in. or 2½ in. focus, between the forefinger and thumb of his left hand, and hold it 2 in. or 2½ in. from the eye under observation, his ring-finger being placed against the upper edge of the orbit, so as to steady the hand; the upper lid may, if necessary, be at the same time lifted with the tip of this or the little finger. With a little practice and perseverence the surgeon will soon succeed in obtaining an inverted aërial and enlarged image of the optic disc, which will be situated between the observer and the object-lens, and at about the focal distance of the latter. This varies, however, with the refraction of the patient's eye. In order to magnify the image still more, an object-lens, of 3 in. or 4 in. focus, may be employed, or a convex ocular lens of 8 in. or 10 in. focus, may be placed in the clip behind the mirror.

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* A considerable portion of the first lecture, in which the theory of the ophthalmoscope was explained, has been unavoidably omitted, on account of the space which would have been required by the numerous diagrams.

† Dr. Lionel Beale has lately invented an ingenious ophthalmoscope which may be used by daylight.

The examination of the virtual erect image (*direct method*).—In this the mirror alone is used without the object-lens; and the surgeon must approach his eye very close to that of the patient, if he wishes to distinguish the details of the fundus, of which he gains a much larger image. Hence this mode of investigation is very useful in solving doubts (which may exist in the indirect method) as to the exact nature and situation of some morbid appearances. Generally a concave ocular lens will be required in order to gain a clear image of the details of the fundus. This will, however, depend upon the state of refraction of the patient's and surgeon's eye. The novice should have the patient's pupil dilated with a very weak solution of atropine, as this greatly facilitates the examination. But when the surgeon has acquired some dexterity, he must accustom himself to examine with the pupil undilated; for the atropine causes the patient much annoyance and inconvenience, and should, therefore, only be employed in exceptional cases.

The ophthalmoscopic appearances of healthy eyes.—The examination of the normal refracting media of the eye (cornea, lens, and vitreous humour) affords a negative result. It must, however, be remembered that the lens undergoes certain physiological changes with advancing years, which a careless observer might mistake for commencing cataract; for the lens substance becomes consolidated, and its nucleus assumes a yellow tint, which is especially marked by reflected light (oblique illumination), but on examining it in the erect image the lens will be found quite transparent.

The optic disc or papilla (entrance of the optic nerve) appears as a circular pinkish-white disc; being lighter and more glistening in dark eyes than in those of persons of fair complexion. It is sometimes oval, this being especially marked in astigmatism. Its outline is sharply defined, and on closer examination we can distinguish at its margin three boundaries or zones: 1, the inner, grey, nerve boundary; 2, the white sclerotic ring, which is most evident at the outer side; 3, external to this, the dark-grey line of the choroidal ring, which is somewhat irregular in shape, and often fringed here and there with deposits of pigment.

The internal half of the disc is redder than the external, which has a somewhat mottled, greyish-white appearance; the grey stippling being due to the nerve-tubules, which are seen in section, the white dots or lines being caused by the trabeculæ of the connective tissue. It is important to remember this physiological difference in the color of the inner and outer portion of the disc, for inattention to this fact may lead to an error in diagnosis; the normal redness of the inner half being perhaps mistaken for hyperæmia or inflammation of the nerve, or the whiteness of the outer portion for incipient atrophy.

The retinal vessels generally issue from or near the central portion of the disc, and their number, mode of division, and course vary considerably. The principal branches, however, always run upwards and downwards; as a rule, an artery and two veins pass upwards, and the same number downwards, but sometimes there are two arteries and two veins. Whilst numerous but small vessels run towards the inner side, only a very few minute twigs are sent to the outer. The retinal arteries may be distinguished from the veins by the fact that they are lighter, smaller, and straighter in their course, having often also a bright streak along their centre, which is due to the reflection of light from the cylindrical walls of the vessels. The blood-supply of the most anterior part of the optic nerve is maintained by three sets of vessels—1, by small twigs from the central vessels of the retina; 2, by branches emanating from a vascular circle situated close to the margin of the optic nerve, and formed by some of the short posterior ciliary arteries;* 3, Leber has found that numerous arteries and some veins pass directly from the choroid to the optic nerve, so that the chorio-capillary system is directly continuous with the delicate network of vessels which surrounds the bundles of the nerve fibres.† This anastomosis explains why there is so often a hyperæmic condition of the optic disc in inflammatory affection of the choroid.

Two physiological peculiarities are frequently observed in the optic disc—viz., spontaneous, or very easily producible, pulsation of the retinal veins, and physiological excavation of the optic nerve. 1. The venous pulsation is almost always confined to the disc, and is characterised by an alternate increase and diminution in the calibre of the vein; the emptying commencing at the centre of the disc and extending to the periphery, whereas the refilling is centripetal. Slight pressure on the eyeball with the tip of the finger renders the pulsation more marked. Whilst spontaneous venous pulsation is quite physiological, it must be remembered that it is otherwise with spontaneous pulsation of the retinal arteries; for this is always a pathological phenomenon, depending on an abnormal increase in the intra-ocular tension. 2. The physiological excavation may be at once recognised by its being limited more or less to the centre of the disc, and not extending to its margin. A white, glistening, oval or round spot is noticed at or near the centre of the disc, surrounded by a reddish zone, which varies in breadth with the size of the excavation; if the latter is small, the zone will be wide, and *vice versâ*. The edge of the white spot (excavation) generally slopes gently, and is only steep or abrupt if the cup is funnel-shaped. If we trace the course of the retinal vessels from the periphery of the disc towards the centre, we find that they describe a more or less acute curve as they pass down over the margin of the excavation. This curve is, of course, the more abrupt and considerable the deeper the cup.

Leaving the optic disc, the beginner must next attentively study the general appearances of the background of the eye (fundus oculi); and observe the mode and distribution of the retinal vessels, and the difference between these and those of the choroid. The bright-red color of the fundus is due to the reflection of the light from the bloodvessels of the retina and choroid, more especially the latter, and not at all to the retina itself; for as the latter is very translucent, it reflects but very little light, and is quite invisible in the eyes of very fair persons. In very dark eyes it appears as a thin grey film or veil spread over the fundus, being especially apparent around the disc and yellow spot.

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* Vide Jaeger: Einstellung des Dioptrischen Apparates, p. 55.

† Leber: Archiv fur Ophthalmologie, vol. xi., p. 5.

The great variations in the appearances of the fundus which are observed in persons of different complexions should also be attentively studied. In dark individuals the fundus appears of a rich reddish-brown tint; and if the epithelial layer and the stroma of the choroid are rich in pigment, the choroidal vessels may be completely hidden, and only the retinal vessels be apparent, dividing and subdividing into numerous branches, which become smaller and smaller towards the periphery. If the epithelial layer contains but little pigment, but the stroma is richly pigmented, the appearances will be totally different; for then the choroidal vessels will be distinctly visible, appearing as bright-red bands or ribbons divided by dark islets or intervals, the intervascular spaces. If the stroma is light, the epithelial cells appear, with a high magnifying power, as small, circumscribed dots, uniformly strewn about the fundus, and giving the latter a granulated appearance. In the eyes of very fair persons (e. g., albinos), the fundus is of a pale-red tint, and the choroidal vessels present a very striking appearance, being visible to their smallest divisions.

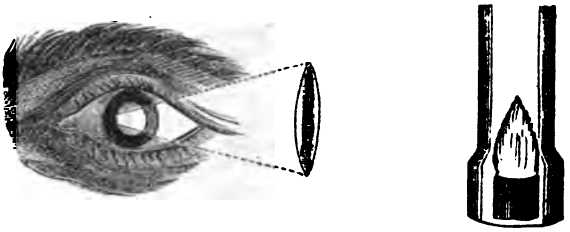
The examination of the yellow spot (macula lutea) generally affords a negative result; but in those cases in which it can be seen, it will be found that in dark eyes it appears as a largish dark red spot with a small white dot in the centre, the foramen centrale. In light eyes it has a bright-red tint, the foramen centrale resembling a small light circle. The retinal vessels course round the yellow spot, sending a few twigs towards it, but leaving its centre free.

The beginner should always proceed on a certain system in his ophthalmoscopic examination, for by doing this he will be guarded against overlooking anything. He should therefore examine every eye in the following manner:—First, with the oblique illumination; secondly, in the erect image; thirdly, in the reverse image.

The examination with the oblique illumination is of great use in ascertaining the condition of the more superficial parts of the eye—i. e., the cornea, iris, pupil and cystalline lens, and even the anterior portion of the vitreous humour. It is to be thus conducted:—A lamp having been placed somewhat in front and to one side of the patient, at a distance of from two to two and a half feet, and on a level with his eye, the light is to be concentrated upon the cornea, iris, or crystalline lens, by a strong convex lens of two or three inches focus. (Fig. 3.) The observer's eye is to be placed on one side of the patient so as to catch the rays reflected from the eye of the latter. To enlarge the image the surgeon may employ a second lens as a magnifying glass.

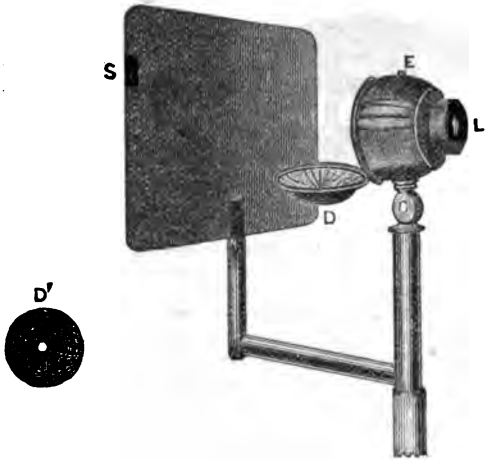
When the examination with the oblique illumination is finished, the surgeon must examine the refracting media in the erect image, and also ascertain the state of refraction. In this proceeding the mirror alone is used, the surgeon placing himself at a distance of ten or twelve inches from the patient. The latter should be told to look in various directions, in order that the more peripheral portions of the lens may come into view and any marginal opacities be detected. Moreover, these movements cause any vitreous opacities to be shaken up and to float through the field of vision. Next as to the refraction; if there is a high degree of myopia or hypermetropia, this condition may be readily detected by the fact that we can see the details of the fundus—e. g., the retinal vessels, at some distance in the erect image. For instance, if, in a case of high myopia, we regard one of the retinal vessels on the disc or retina, and move our head slightly to one side, we notice that the image moves in the contrary direction; if we move to the right, it moves to the left, and *vice versâ;* so that we obtain a reverse image of the fundus. In hypermetropia, on the other hand, just the opposite occurs, for the image moves in the same direction as the observer. In emmetropia we do not with the direct method gain any image of the fundus at some distance, which is in part due to the great diminution of the visual field, but chiefly to the rapidly increasing enlargement of the object when the eye is examined at a distance, which is so great that in the area of the field no single vessel can be seen sharply defined, but only appears as a red reflection in the pupil. Mr. Couper has lately shown that with a weak concave mirror (of thirty inches focus) cases of mixed astigmatism may be easily diagnosed in the erect image; in such cases an inverted or erect image becomes alternately visible according as the observer views the fundus through the meridian of the greatest or the least curvature. The state of refraction may also be diagnosed in the reverse image. In the *emmetropic* eye the reversed enlarged image of its fundus is formed in front of the object lens, and at its focal distance. In *hypermetropia* the emerging rays are divergent, and hence the image is formed further off than the focal distance, and is consequently larger than in emmetropia. In *myopia* the emerging rays are convergent; the image is therefore formed nearer than the focal distance, and is consequently smaller. Mr. Hutchinson has, moreover, pointed out that the existence of hypermetropia or myopia may also be recognised in the reverse image, by observing whether the size of the disc undergoes any change when the object lens is removed further from the eye; for in hypermetropia it diminishes and in myopia it increases in size as the lens is removed to a greater distance.

FIG. 3.



I cannot too strongly impress upon beginners the importance of closely and minutely examining a great number of healthy eyes, so that they may become thoroughly conversant with the physiological appearances of the fundus, and the numerous peculiarities that may occur within normal limits. To those who have not the opportunity of examining many human eyes, I would recommend the use of Perrin's artificial eye.* (Fig. 4.) It consists of a brass artificial eye (E), fitted in front with a plano-convex lens (L), in the situation of the cornea. This lens is covered with a black metal cap, having a central aperture corresponding to the pupil. There are two of these caps: the one has a very small central aperture, which corresponds to the normal size of the pupil; the other a larger opening, like a widely-dilated pupil. There are, also, three lenses of different refracting power, thus enabling us to convert the eye into a hypermetropic, myopic, or astigmatic one. The posterior half of the eye opens, so as to admit of the insertion of a papier-maché cup or disc (D D′) colored so as to represent the appearances of the healthy fundus, or of some pathological condition. There is a series of these colored discs, illustrating many of the morbid ophthalmoscopic changes of the fundus.

Fig. 4.



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Clinical Lecture

ON

LITHOTOMY IN RECURRENT AND MULTIPLE CALCULUS.

Delivered at University College Hospital,

By **Professor Erichsen,**

Senior Surgeon to the Hospital,
and Holme Professor of Clinical Surgery.

Gentlemen,—I wish to-day to direct your attention to three cases of stone in the bladder, lately under my care; all of which present instances of the somewhat interesting condition of recurrent or multiple calculi. There is little to be said about an ordinary case of lithotomy; but I deem it of great importance to bring under your observation from time to time such cases as may present any unusual features.

Case 1.—*Recurrent calculus in a boy; lateral lithotomy a second time.*—The first case to which I wish to call your attention is that of a lad, R. M——, who was admitted, on the 8th of October, into Ward 5. He is between six and seven years old. His history is briefly this:—

About three years ago he began to suffer from symptoms of stone in the bladder. He was brought to this hospital. A sound was passed, and a stone found. Accordingly he was cut laterally by Mr. Christopher Heath. The operation was skillfully and carefully performed, and every portion of calculus removed, the stone being unbroken and unchipped. I am particular in mentioning this fact as it has an important bearing on the after-history of the case. The boy made an excellent recovery, and continued well up to three months ago. The wound had healed with the exception of a sinus at its lower part, through which a few drops of urine occasionally exuded.

About three months ago he began to complain of pain in the bladder. He rubbed himself, and pulled the prepuce in the way that children do who are suffering from stone. He also began to pass blood in his urine about a month ago. He was admitted in the beginning of October. On sounding him, it seemed that there was a calculus in the prostatic portion of the urethra, or, rather, just outside the bladder. There was a sinus, through which the urine escaped, on the left side of the perineum, at the lower part of the cicatrix of the former operation. It was therefore necessary to subject him to a second operation.

I decided on performing the median operation, as the calculus appeared to be rather a urethral than a vesical one. On the 19th of October he was brought into the theatre. I introduced a grooved staff, and found that the stone had slipped back into the bladder, and was lying there. It was light, and of moderate size. I therefore changed the operation, and performed lateral lithotomy in the usual way, through the old cicatrix, laying open the sinus. I removed a phosphatic calculus, about the size of a haricot bean. There was very little, scarcely any, bleeding, much less than usual, and the patient was put to bed. A few hours later a piece of calculus, about the size of the one that had been removed, was found lying outside the wound. The two pieces, about the size of a large bean, were very light, weighing together something under one drachm. Since then the child has made a good but slow recovery, which was retarded by an attack of inflammation of the left testis. The wound has been somewhat inactive, requiring to be touched occasionally with nitrate of silver.

Here, then, is a case of recurrent calculus in a child, which I look upon as of somewhat unusual occurrence. To what is the recurrence due in this case? Now calculus may return after lithotomy in the four following ways:—

Firstly. Through a continuance of the same constitutional conditions which gave rise to the calculus in the first instance. When it so returns, the recurrent calculus is necessarily of the same chemical composition as the primary one.

Secondly. A calculus may return in consequence

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[1] This instrument may be obtained of Nachet, 17, Rue St. Severin, Paris.

of a portion of the stone having been left behind in the first operation. Although this kind of recurrent calculus is generally phosphatic at the circumference, it will always be found to contain, as a nucleus, a fragment of the primary calculus.

Thirdly. A calculus may return by the descent of renal calculi. You have then a moderate-sized calculus in the bladder, which has been preceded by nephritic symptoms, and symptoms of its passage down the ureter, as pain, retraction of the testicles, &c.

None of these conditions occurred here. The first stone removed was a lithic-acid calculus. The recurrent one was phosphatic. There was no contained fragment in the recurrent stone. There was no history of the descent of a stone from the kidneys to the bladder. Therefore we must set aside these three conditions of recurrence, and consider the remaining one.

Fourthly. A calculus may return in consequence of a chronic state of inflammation of the mucous membrane of the bladder, especially in the neighborhood of a lithotomy wound. In consequence of this you get phosphatic deposit. This is, doubtless, what occurred here.

A circumstance occurred in this case which is very rare. At the end of three years there was still a sinus in the cicatrix, although the first operation had been most skilfully and properly performed, and the child's recovery was rapid and otherwise perfect. Probably this sinus led into the neck of the bladder. The irritation occasioned by it no doubt gave rise to the deposit of phosphates along its track and at the neck of the bladder, which deposit was the nucleus or starting-point of the recurrent calculus. Thus we got a calculus lying in the prostatic portion of the urethra, and just outside the neck of bladder. Probably the sounding had disturbed this calculus, and had pushed one half of it into the bladder, from which I had to extract it in the ordinary way. It was formed from deposit from the urine outside or just within the neck of the bladder. The portion which escaped later must have been outside the bladder at the time of the operation. I must have passed it in the wound when introducing the forceps. It remained in the wound, and came out shortly after the operation. Here, then, was an instance of a recurrent calculus of phosphatic character occurring in consequence of irritation of the mucous membrane, and of the track of a sinus.

About eleven years ago I operated by the median method on an excellent and distinguished member of our profession in the country, who was suffering from atony of the bladder and stone. He was at the time in a very low state of health, and had long suffered from atony of the bladder and inability to empty it completely. I removed a quantity of phosphatic matter from the bladder. About a year after the operation he came up to be again under my care. As he felt a return of the symptoms of stone I sounded him, and found some phosphatic concretion. I introduced a lithotrite, and found a small calculus at the neck of the bladder, which I crushed, and the fragments of which I removed. He made a good recovery, and I am happy to say that he is still alive and well, although the atony of the bladder has never been recovered from.

This recurrence of stone may have been due to constitutional condition, or to a continuance of a chronic inflammation of the bladder.

But it is by no means necessary that these phosphatic deposits should form in the bladder. If a small aperture forms in the urethra from follicular abscess, or in any other way, so as to allow of the long-continued contact of the urine with an inflamed or ulcerative surface, you may get a phosphatic calculus outside the bladder.

About four years ago I admitted, in a private ward in the hospital, a clergyman who had been much reduced in health and means by long-continued urinary disturbance and disease. He was said to be suffering from stricture of the urethra; and on examining the canal I found I could only introduce a small gum-elastic catheter with great difficulty. There was considerable obstruction about the bulbous portion of the urethra for the length of an inch. I was somewhat puzzled about the nature of the case, as the obstruction did not feel like that produced by the ordinary stricture. One day, in order to examine the urethra more carefully, I introduced a silver catheter, and found that it grated along some calcareous matter in the upper wall of the canal. I thought it better to cut down on this, and to remove it. I accordingly performed an operation something like perineal section. I found no stricture, but in the urethra a large mass of phosphatic calculus, round and smooth, about the size of a large walnut. It was lodged between the upper wall of the urethra and the pubes. I easily removed it with a scoop. The patient made a good recovery. I inquired carefully into the earlier history of the case, but found it obscure. It appeared, however, evident that the urethra had given way at some time, and so had been perforated towards its upper surface. A certain infiltration of urine had taken place, which had probably been encysted, or had merely occupied the cavity of an abscess, and this had gradually given rise to phosphatic deposit. Just as the water of a petrifying well will give rise to calcareous deposit on a twig left in it, so will the urine, under certain conditions, local or constitutional, give rise to a phosphatic deposit round any body on which crystals can form; and for this purpose a clot of blood or a shred of cellular tissue will suffice. Thus a gradual formation of concentric phosphatic deposit had taken place, forming a concretion perfectly smooth and round, and of large size, but altogether extra-urethral.

Thus phosphatic deposits may take place inside or outside the bladder, with or without any previous operation, if there be an aperture which admits unhealthy urine into an encysted cavity in the tissues.

The next case is also one of recurrent calculus, but is interesting in that it is a case of multiple calculus as well. The history is briefly this:—

Case 2. *Atony of bladder; multiple and recurrent calculi in a man; median lithotomy; return of renal calculus; lithotrity; cure.*—J. D——, aged fifty-four, was admitted June 27th, having been sent to me by my friend Dr. de Mussy. He is a teacher of French. Up to the last ten years he has enjoyed good health, and has never had gout, rheumatism, or syphilis. About seven years ago he first perceived that he passed gravel; he had pains in the region of the bladder and at the end of the penis; his water stopped suddenly: in fact, he had all the ordinary symptoms of stone in the bladder. He placed himself under the care of one of the most eminent members of the profession, Dr. Rayer, of Paris, who had devoted much attention to these cases. Whilst under treatment he passed a large number of small hard calculi. Alkaline remedies were exhibited; chiefly the bicarbonate of potash. He passed altogether about one hundred calculi between the time of his first affection and his admission here (a period of about four years). On admission, he looked very ill; he was extremely sallow and pasty in complexion; large and stout in make; his pulse was weak, and very compressible. He had no appetite, and was incapable of active exertion. There was severe pain in the bladder on any movement, and constant desire to pass water, which he did three or four times an hour. He was quite unable to follow his occupation. His urine was slightly alkaline, contained pus, and was occasionally tinged with blood, It contained a very considerable quantity of albumen, much more than could be accounted for by the pus and blood. Under the microscope were seen blood-cells, pus-cells, and crystals of triple phosphate, but no renal epithelium or casts. On the 29th I sounded him, and found a large mass of calculi in the bladder, composed, in all probability, of a great number of small or moderate-sized stones. There was a certain amount of atony of the bladder —irritability with atony,—two or three ounces of urine always being retained. The treatment was diluent and soothing, so as to bring the bladder into a fit state for operation.

On July 11th I performed median lithotomy, using a rectangular staff, which I prefer for these cases. The angle of the staff is made to project just in front of the deep perineal fascia, where it can always be felt, and is a sure guide to that part of the urethra that is to be opened. On this I cut into the urethra, and with the finger dilated the prostate without incising it. With the forceps and scoop I then removed exactly fifty calculi, all marked with facets, quadrilateral or hexagonal, somewhat pointed by rubbing. They were all composed of lithic acid, but more or less encrusted with a thin layer of phosphates. The whole mass weighed fifteen drachms. Very little blood was lost. A tube was introduced, and the patient removed to bed. The tube was taken out on the second day. The wound then collapsed, so that no urine could escape. In a few hours ten ounces were drawn off by a catheter. The atonic state of the bladder, which had existed before the operation, continued, so that a catheter had to be used several times a day.

On the 20th the catheter was tied in at night, no urine passing by the wound. The urine was alkaline and offensive, with muco-pus and phosphates. The bladder was therefore washed out with dilute Condy's fluid twice a day, and a catheter passed every four or six hours.

On Aug. 5th the catheter was tied in day and night. The wound was sluggish, and required to be touched with nitrate of silver. The bladder continued atonic, and required to be washed out twice a day. His health had greatly improved. Getting tired of the hospital, he returned to his home at Greenwich, where he rapidly recovered.

In the early part of December he presented himself again. He was a changed man, quite healthy, and fresh-looking for his age, active, and able to carry on his occupation. He requires, however, to have a catheter passed occasionally, as the bladder does not quite empty itself. He experienced some of his old sensations, and thought that another stone had come down from the kidney. I examined him, and found a stone, which I crushed with a lithotrite; it was composed of lithic acid. At the end of a week I removed the fragments with a lithotrite scoop. Since then he has passed an excessively minute calculus.

Here, then, is a case of recurrent calculus of a totally different character to the last one I described. The patient had been subject to renal calculus for years. He was cut for stone. Some months after the operation another stone had descended into the bladder. This calculus could not be expelled, owing to the atonic state of the bladder. It was therefore crushed, and the fragments removed. This case is an excellent illustration of recurrence by descent of calculus from the kidney.

The next point I wish to discuss is the reason why I selected median lithotomy in this case. I hold that it is well not to wed oneself too closely to any one method of treating stone, but to adopt the method best suited for the case under consideration. Lithotrity was out of the question on account of the large number of stones, the irritable state of the bladder, and the broken state of the patient's health. I chose the median method because the man's health was so broken that the loss of a very small extra quantity of blood might have turned the scale against him. I also thought that the shock of the larger incision in lateral lithotomy would have been greater. I was anxious to get out the stones, which I knew to be small, by the smallest possible incision, with the smallest amount of shock, and the least degree of shock. I therefore made an incision through the tissues down to the prostate, but dilated this with the finger without incising it. There is no simpler method of extracting small or moderate-sized stones from the bladder by lithotomy than this mode of operation, by introducing a small pair of forceps and picking out the calculi. The wound closes very quickly. His bladder was irritable and atonic before the operation, atonic after; which state often follows irritability of the bladder—as, for example, after frequent use of instruments. We had, therefore, to draw off his urine. Practically, it was drawn off per urethram after the third day. There was no incision made deeper than the membranous portion of the urethra. The prostate and neck of the bladder were simply dilated. I thought this the simplest and safest method, and I think we were quite right in adopting it in this case. The patient made as good a recovery as we could expect under the very unfavorable circumstances in which he was previous to the operation.

Another case is also interesting. It is one of multiple and broken calculi in a boy.

CASE 3. *Multiple and fractured calculi in a boy; lateral lithotomy; recovery.*—F. W——, aged thirteen, was admitted June 20th. He had suffered from symptoms of stone for several years. It was very difficult to get a correct history, owing either to his reticence or his want of intelligence. On sounding him, I found what appeared to be a large and rough calculus. Two days after I operated by the lateral method in the usual way. There was one uric-acid calculus of small size, and a mass of broken fragments. This was ascertained by the finger before the introduction of the forceps. These fragments were dark, sharp, of various sizes, and had all the appearance of having been broken by a lithotrite. The boy was closely questioned, but it appeared that he did not know anything beyond the fact that he had been sounded or examined before his admission here by several surgeons. There was very little bleeding. On the 3rd of July the wound was touched with nitrate of silver. He made a rapid recovery. There was one whole and several broken calculi.

Multiple calculi are not common in children, though I have removed from a boy seven or eight calculi, matted together with mucus and phosphatic matter, so as to form a single mass. But three or four are not commonly met with.

This case is interesting and remarkable in several points of view. The presence of broken calculi I ascertained with the finger as soon as it was passed into the bladder, before the forceps were introduced. They had all the appearance of having been broken by a lithotrite. It is true that spontaneous fracture of a calculus occasionally occurs; but this is the fracture of one large stone into several pieces, not that of small calculi into smaller fragments. I cannot but think that a lithotrite had been introduced, perhaps to measure the calculi, and had broken them; but the patient was very reticent about the matter, and perhaps did not know what had been done.

A somewhat similar case occurred to me sixteen years ago, where I removed a calculus about the size of an almond, and a large mass of broken fragments, from the bladder of a middle-aged man. These fragments were, to a certain extent, incrusted with phosphates. It was clear that they had been broken by a lithotrite. After a great deal of questioning, the patient admitted that he had been to a medical practitioner who had promised to cure him without operating, but probably did not sufficiently explain the nature of the treatment. The stone was crushed once; but, feeling he was not cured, he came to the hospital, not mentioning what had occurred previously. This was only ascertained after he had been, as it were, driven into a corner by severe questioning.

Note.—Since this lecture was delivered, Case 2 has suffered from the descent of several renal calculi, which have from time to time been crushed and the detritus removed by the scoop.

Original Papers.

REMARKS ON SCIENTIFIC THERAPEUTICS.

Being a Portion of a Lecture delivered at Guy's Hospital.

By Samuel Wilks, M.D., F.R.S.,

Lecturer on Medicine.

I wish at an early part of the course to make a few general remarks on our method of treating disease, as it will save me much trouble in the future. This method, in a word, I shall have to teach you is empirical. I shall inform you to the best of my knowledge and experience what remedies have been found most effective in arresting morbid processes, or in conducting the patient safely through them; but I shall not attempt any theory or explanation of their action. We may discuss such questions (as we now constantly do) as a little mental exercise at the bedside of the patient. Neither shall I attempt to lay down any fixed principles of treatment, except such as experience has shown us can be safely adopted. For, on the belief that all our best treatment is empirical, it would be only a waste of time to make any effort to theorise. I should have preferred to offer you some principles based on true scientific grounds, and on which you could act in particular cases,—to have explained to you how we are possessed of various drugs having distinctive properties, and under what circumstances these may be employed in disease. I believe, however, that at the present day this cannot be done, nor is it wise to speak of principles when framed from conclusions whose premises are altogether false. To say that I have no principles is a humiliating confession, and in declaring it I am conscious of running counter to the opinion of the greater number in our profession; and in acting upon it probably should be opposed to an overwhelming majority. I mean by this, that probably the larger proportion of practitioners associate some theory with the administration of their medicines. For my own part I believe that we know next to nothing of the action of medicines and other therapeutic agents; that experience alone has informed us of their value in particular diseases; that we have no especial indications whereby we can be certain of their action; or, in other words, that the individual symptoms afford us but little aid in the proper use of a drug, but that we are rather guided by the totality of the symptoms, or by what is called "the disease." We must indeed treat the disease, and not the symptoms. I know, in stating this, that I am carrying you back to a former therapeutic age, and am disturbing the very foundation of the therapeutic art. There was a time when I scarcely dared to confess these opinions to myself; and this is the first occasion on which I have been bold enough to assert them before my class. I do so now, and wish to enforce them; for I believe an attempt to theorise with superficial knowledge has been the great bane of therapeutics for the last twenty or thirty years.

I may better explain my position by a few illustrations, and then leave to you the whole range of medicine to confirm it. First of all, remember that most of our valuable remedies have come to us from unknown sources, and were never suggested by any theoretic considerations whatever. Turn over the pages of the Pharmacopœia, and see how few and valueless are those drugs which theory has proposed compared with others brought us from barbarous times and nations, such as digitalis, bark, arsenic, or ipecacuanha. Then, again, when we have found a valuable drug, and have some knowledge of its action in the healthy body, this assists us very little in the treatment of disease: for example, those which have a peculiar physiological action on the nervous system, such as opium, conium, or chloroform, are found to be of far less value in nervous diseases than quinine, zinc, or iron; whilst, on the other hand, opium and nux vomica are of more avail in any other than nervous diseases. I do not want you, therefore, to continue to do what has been done ten thousand times before—to give opium, chloroform, or conium in such diseases as tetanus, mania, or chorea, simply because you think they are suggested by the symptoms. It is because there is an apparent natural suggestion for their use, and yet they are found valueless on trial, and because also the more beneficial remedies, such as zinc or iron in chorea, have never had their action satisfactorily explained, that I employ this language; the only indication for the use of these drugs being the existence of a particular disease, and not the presence of any particular symptom. Moreover, could we treat symptoms, or influence them by our remedies, it by no means follows that it should be our aim to do so. Because a person is delirious or maniacal, you are not necessarily to neutralise his condition by stupefying him with opium or chloroform; indeed, the greatest harm frequently results from such a superficial line of practice.

Now, this is not what you would have liked me to teach you; you would have preferred that I should have laid down some plain rules and scientific principles for your guidance. I know this, for thus I felt when a student; and how pleased I was to have a guide in the person of a surgeon who could say that, with that state of pulse, you must give calomel, and, with that, you may combine opium with it; or, looking upon an inflamed surface, could inform you on principle when leeches were desirable, when a hot poultice, and when a cold one, should be applied. In ophthalmias of various kinds, you could be informed of the symptoms which indicated the use of either leeches, blisters, opium, or calomel. Nothing could seem more scientific or more self-satisfying to the student. But, alas! very soon my whole medical nature received a severe shock when I beheld this gentleman's successor ignore the whole practice, or adopt an opposite method with equally good results. The error lay with this surgeon in believing that he understood the value of symptoms—in assuming that the symptoms should be treated, and in thinking he was acquainted with drugs which could influence them. These notions were all based on a theory which no facts warranted his forming. The method, however, is still pursued by many at the present day. What many of us have heard orally and from books is a doctrine which you would all accept without hesitation were I to propound it to you as a most reasonable and just one; but, unfortunately, it is the very opposite to that which I have already declared, and am bound to teach you as the more correct one. You have heard, for instance, such a speech as this: "Do not go into the wards, and, examining the bed-card, observe the word 'pneumonia' written on it, and then take a note of the treatment to guide you in future cases, for this would be but treating a name; rather study the symptoms, so that each case may be treated on its own merits." I had myself at one time a half belief that this was true, but I now know that, even if it be true, the feat cannot be accomplished; indeed, my strong conviction is, that this vain attempt to treat a case on its merits is the grand cause of all the bad therapeutics of the present day; it has been the cause of the too prevalent discarding of drugs, and of the great modern heresy—The administration of stimulants in nearly all diseases. It seems to be taking you a retrograde course to instruct you to regard the diseases rather than the symptoms, and lead you back to pure empiricism. But when you remember that we have at present but little knowledge of the meaning of particular symptoms, that we are ignorant of the action of medicines, and that we have not satisfactorily proved to ourselves that we ought to treat symptoms, we had better have done with theory until we get a larger insight into morbid phenomena. Pope's oft-quoted lines certainly apply here:

> A little learning is a dangerous thing:
> Drink deep, or taste not the Pierian spring.

I will now try to show you the hazard you incur by attempting to treat symptoms rather than by regarding the disease as a whole, and treating it in the manner which experience has dictated to be the best. I think I can show you, also, the incorrectness of the opinion that a disease is nothing more than the totality of the symptoms. This, by-the-by, is the homœopathic theory. I may remind you of my every-day remark, that there are few pathognomonic signs of disease, but that diagnosis is founded on probabilities. Therefore that man forms the most correct opinion who has the best acquaintance with these probabilities; he, indeed, who has his mind most replete with pathological knowledge, who is familiar with all the diseases to which mankind is liable as observed in the sick-room or the deadhouse. Thus the acutest man often fails in diagnosis because he is ignorant of the existence of certain diseases, or at least of their frequency. This he himself will sometimes admit, declaring at the same time that the want of knowlege is of no importance, as his business is with symptoms only. Now, let us see the result of this doctrine; and you will agree with me that it is often a very melancholy one. Suppose two cases of paraplegia come before you presenting much the same symptoms. One of these you cure by tonic medicines and galvanism; for the patient has (what has been called) an exhausted state of the cord, induced by excesses, or perhaps by a railway shock, whereby the tone of the nerve-centre has been lowered. You adopt the same treatment in the other case, with complete failure, but afterwards cure it by iodide of potassium. Why? Because, not content with observing the symptoms, you have discovered the cause of the disease to be syphilis, and then you cure him. The medicine would have been the same, and the result equally satisfactory, had the symptoms been different. Again, you cure an enlarged aguish spleen by quinine; but you administer it in vain in the hypertrophy of leucocythæmia. I have records of more than twenty cases of this affection which show the utter inutility of the drug; but it will still be given long after you and I have done with physic, for spleen and quinine stick as closely to one another as do liver and mercury. Now, I will tell you of a case where a disregard of the cause of the disease is fraught with more serious consequences. A young girl is seized with pain in the right iliac region, accompanied by swelling and some febrile disturbance. Post-mortem experience, and nothing else, informs you that this inflammation of the bowel is very probably due to some ulceration of the appendix cæci; and the same experience will also inform you that the lymph which is thrown out around it may, by gluing the opening to a neighboring part of intestine, prevent further egress of fæcal matter, and limit the inflammation to a corner of the abdomen. Absolute rest, therefore, is necessary, both for the body generally and the bowel in particular. Nature attempts this by temporarily paralysing the movements of the intestine, and taking away all desire for food. Now let us see the course pursued by one who does not care to recognise the disease (after homœopathic fashion), but declares that his business is with symptoms alone. He observes that the bowels are confined, that there is sickness, and that there is abdominal pain. He thereupon turns to in order to relieve these symptoms: so he first gives a purge to excite the bowels to action; and secondly, to aid in the operation of the drug; he orders a stimulating injection; thirdly, to check the sickness, he fills the patient out with gaseous effervescing mixtures; and fourthly, he advises the nurse so rub the abdomen with a liniment, to relieve the pain and flatulence. When he has adopted the four very best means which could be devised to undo what nature was attempting to perform, and set up a fatal peritonitis, he receives with the most perfect satisfaction the thanks of the friends for not having left a stone unturned to subdue the complaint. I wish I were relating to you an imaginary case; but, unfortunately, I have the reality in my mind's eye. Such a catastrophe as this arises from treating the symptoms rather than the disease. I will give you another example: I see a patient with fever, and because the bowels have not been relieved for four days a purgative is suggested to be given. I decline to order one, as the case is one of typhoid, and I prescribe for the complaint rather than the symptoms. On that very day an excessive diarrhœa takes place. I might say that all the improved treatment of fever of late years has arisen from a due consideration of the nature of the malady, whereby it is guided in its course; and this contrasts favorably with what I have seen where a "fussy" practitioner has been dealing only with the phenomena—as, for instance, applying cold to the head against the delirium; leeches to the belly to relieve tenderness; chalk mixture to arrest diarrhœa; besides some "stuff" for the cough. As regards the propriety of administering astringents in typhoid fever, we have very contrary opinions expressed by eminent men, according to their theoretical views of the nature of the disease. If we had had the result of unbiased observation, we should before this have had indisputable facts to guide us. In what cases cold should be put to the head we know not; we see it adopted where there is pain, heat, or delirium, and thus in the most opposite conditions. In speaking of fever, I might allude to the cold-water treatment, which has been so much advocated of late in Germany. Holding the opinions I do, I should not object to use it; but to those who treat fever on principle, and who consider it of the first necessity to prevent a patient with febrile symptoms to be chilled, such a suggestion as placing him in cold water two or three times a day would be almost a homicidal procedure. I am constantly seeing hæmoptysis treated with ice-cold water to the chest, and "common sense" is said to dictate its use; but, according to Dr. Chapman's theories, heat should be the proper remedy. Now, I consider it a disgrace to our profession that we are not all agreed as to whether such treatment is beneficial or not. Surely we should possess our knowledge first, and theorise afterwards.

The treatment of symptoms in a thoughtless and ignorant manner is not, however, fraught with so much mischief as when it is put in practice by educated men, and with "malice prepense." The worst sinners in this respect have been, in my experience, young men of considerable scientific attainment, and often foreigners; they could only make use of their theoretic knowledge, and had not yet discovered by a larger practical experience that it was not sufficiently sound to be put into active operation. Thus, the other day I met a young practitioner in the case of a patient who had acute renal dropsy, and he detailed to me the symptoms in a most elaborate manner, and went through a description of the urinary casts like a book. I was delighted, and expressed a hope that his patient would soon get well under the usual treatment—such as placing him in bed, feeding him on slops, giving him some salines, with perhaps some antimony, and an occasional purge. The doctor informed me that he had done none of these things; for, since his patient complained much of weakness, he had not wished to put him in bed; nor, indeed, for the same reason, had he ventured to give such medicines as I had named; but what he had done was to order him bismuth for the sickness, and some brandy to keep him up. As for the bowels, they had not been opened for some days; but then purging would weaken him. In fact, the most opposite treatment had been adopted to that which experience has shown us to be eminently beneficial. A gentleman came to me one day complaining of diarrhœa, of which he had been the subject for some weeks. Finding it was of a dysenteric character, I prescribed some ipecacuanha, because I knew it did good in the form of disease which this patient had, although I had not the smallest scientific conception of how it acted. In about a fortnight he was completely cured. He then showed me a prescription written by a medical man of considerable intelligence, and who had ordered him a mixture and pills. Some of the ingredients composing these were compound, but by counting them all I found he was swallowing thirty-four different drugs at one dose. The doctor had given a reason to the patient for what he had done, but the gentleman could not, unfortunately, remember the several actions of the medicines. Some medical men designedly practise this method with their patients, and in good faith too; they can fill up the whole "six inches by four" after this manner: "Yes, Mr. Jenkins, your pulse is weak, and I shall prescribe a tonic, at the same time putting a little something in it to clean your tongue; for the acid rising I shall insert a little alkali, and, as your water is thick, a little something to act on the kidney, and then a little dandelion for the liver. You must keep yourself up with a few glasses of dry sherry (none other than "dry" is ever seen or heard of), and a little rum-and-milk in the morning; and, mind, a glass of beer is poison to you." If the patient were a lady, he would order something for the leucorrhœa—but she consults her physician-accoucheur specially for that. It is to be observed that we have long discontinued the use of the proper dose of medicines, and prescribe for our degenerate brothers and sisters only a "little" of them.

Remember, I have nothing to say theoretically against a scientific use of medicine, but I deny that, at the present day, we have sufficient data to guide us; and thus the experienced man is the best practitioner. But just now I had an example of this. A young lady was seized with acute mania. An old and experienced man, of no scientific attainments, placed her in a room with an attendant, administered aperients, and did all that the art admittedly allows. The friends, not satisfied, called in a younger and cleverer man, who commenced to treat the case *secundum artem*, first by shaving the head and applying a blister all over it, and, secondly, by administering large doses of morphia. The girl was driven raving mad by the method.

"But surely," said the doctor, "such remedies were suggested—the counter-irritant for the excited brain, and the opium to procure sleep." Take that common disease, rheumatic fever. It is evident that the predilection by one practitioner for alkalies is supported by the sour perspiration and the hypothetical lactic acid in the blood, whilst the advocacy of quinine and iron is stimulated by the belief that rheumatism is a nervous disease. Then, again, we shall find one medical man prejudiced in favor of particular remedies when his mind is upon cell growth, another in favor of medicines which alter the chemical relations of the blood, and another in favor of those which act on the vaso-motor system of nerves. The vaso-motor theory of therapeutics is the latest and simplest, for by the application of heat and cold you may, by acting on the nerves, influence the amount of blood-supply to a part, and so, by altering all nutritive processes, cure any disease which flesh is heir to.

In all these cases unproved theories have had greater weight than well-supported facts. The greatest calamity, however, arises from the fact, not that men disbelieve in the efficacy of remedies, but that they practically repudiate these in individual cases, because their theories oblige them to consider the medicines unsuited to the particular case in hand. They take their ideas of the action of medicines according to the effects of these in health, and then apply their observations to cases of disease. Thus it is that there is no complaint but what is treated with ammonia and brandy. The case under consideration, it is said, will not bear what is called the routine plan; and so old and approved remedies are discarded, and stimulants supply their place on account of the patient's weakness. I constantly see, for example, cases of pneumonia where I have every reason to believe that some old-fashioned medicines would be useful, but stimulants are administered instead (with a blister, which I believe does more harm than good). The medical attendant is a great believer in physic, and he by no means treats patients with stimulants; but this particular patient was so low that he seemed to require them. Acute rheumatism with chest complication I see treated in exactly the same manner. In fact, if weakness is to be treated, and not the disease, ammonia and brandy are pretty nearly universal remedies. Thus, within the last two or three weeks, I have had the opportunity of seeing the following diseases treated in exactly the same way with these two drugs: typhus, pneumonia, delirium tremens, rheumatic fever, cynanche, scarlatina, typhoid, hepatic ascites, erysipelas, small-pox, morbus cordis, pyæmia, bronchitis, diphtheria, carbuncle, and pleuritis, besides a number of nameless chronic maladies. Now and then I have had the opportunity of contrasting a truly remedial method with this let-alone system, and often to the advantage of the former. Thus, on three separate occasions, I have seen patients with acute cynanche tonsillaris, where the terrible word "malignant" had been associated with the disease, and consequently large quantities of port wine were being "poured in," and ammonia and bark administered as medicines; and in all these cases, at my instigation, these means were discontinued, and the patients were put on the old-fashioned plan of a purge, saline mixture with antimony, and some Dover's powder with calomel. In all the rapid subsidence of the symptoms was most marked. In croup I find that some practitioners still keep to the old antimony emetic, and the result, in my opinion, contrasts most favorably with that which is seen in the hands of the "trimmers," who are content to order a little harmless medicine. For between the bold practitioners who either use active medicines, on the one hand, or more active stimulants, on the other, are the timid men, who find it safest to take a middle course, and, by splitting the difference, believe that they have pursued a truly scientific method.

A good example of the evils of no treatment occurred to me lately in a case of pleuritic effusion. A gentleman requested me to see one of his men, in this neighborhood, who was suffering from this complaint, and whose appearance was such that I had considerable doubt as to the possibility of his recovery. I stated to the medical man whom I met that I was well satisfied with the orthodox method of treatment—namely, diuretics, some mercury and opium, and counter-irritants to the chest. I was met with the customary answer, that people cannot bear now what their fathers could (a theory unsupported by any good facts), and that he feared all the remedies I had mentioned would depress the patient; and thus he had been writing the usual prescription of ammonia and brandy. I then requested that I might have the man under my charge in the hospital, where I immediately stopped the stimulants and put him on the plan I had recommended. He remained in a very precarious state for a few days, and then rapidly recovered.

Making mention of counter-irritation reminds me that some capital essays have been lately written on this subject, showing the absurd reasons which suggested the method, and the absence of a *rationale* in the minds of those who still adopt it. The case serves me for illustration, for I have the strongest belief in the efficacy of counter-irritants, although I have no very positive idea of their action.

The error of allowing what is called reason or common sense to guide you, when the data on which to form a right opinion are wanting, is never better seen than in the simple case of dyspepsia which is daily before us. A patient states that his food does not digest, and that he is troubled with acid eructations. For this acidity he may have been recommended alkalies, or may have taken them on his own account; and yet very frequently the remedy which is the best tonic for his stomach is a mineral acid. The case, very often, is not one primarily of gastric weakness, but of nervous or cerebral dyspepsia. One of the commonest examples of what is supposed to be a rational use of medicine is the administration of iron. In the majority of instances, I have every reason to believe, it is given because the patient looks pale. The idea is that pallor implies a deficiency in the red coloring matter of the blood, and that the color is due to iron; therefore that person wants iron who is pale, or, to use the cant phraseology of the day, because he has a deficiency of red particles in his blood. This is a piece of scientific therepeutics which the patient can understand, and so doctor and patient are pleased with a very pretty piece of sentiment. I am not saying a word against iron, which I consider is one of the most valuable medicines in use, and I know that in chlorosis it is our best remedy; but I also know that this disease is curable by aloetic and other medicines, and I can inform you, too, that in many other forms of anæmia it is a remedy which is utterly useless.

There is a class of cases which, for want of a better name, we are forced to designate idiopathic anæmia; patients with this disease are saturated with iron by every fresh doctor they consult, but without the slightest benefit. I hope to be able to tell you of cases which are benefited by iron, but I cannot teach you that because a man looks pale he therefore requires this metal.

I might go on thus through the whole category of diseases and drugs, and show how deceitful is the method of administering the latter for a supposed connexion between them and the disease. I might tell of the hundreds of persons with paralysis taking strychnine because it is the correct remedy, but without any benefit to their symptoms; also of the injurious effect of the indiscriminate use of chloral and opium. If your patient cannot sleep, or experiences pain, these of course are the remedies suggested; but you may merely benumb or stupefy him, without touching the cause. I think the universal use of chloral in every possible malady presents a most pitiable exhibition of the weakness of our therapeutics. Everyone who is ill has a pain or an ache, or is irritable and restless, and at length we have got a panacea. What can be thought of our art when we are so ready to catch at a new drug and administer it to everybody. Now it is chloral, yesterday it was carbolic acid, and before that bromide of potassium. Just as, two years ago, everyone was taking this last medicine, so now everyone is swallowing chloral. It is a most sorry patch-work piece of business. What I mean is this, that a man who is always ready to accept the last new remedy can have no great confidence in his former methods. And yet it is this very man who is said to be a believer in medicine. No greater sceptic can exist. When meeting with such a person I myself have been charged with scepticism; and, if you will allow me, I will refer for a moment to a personal matter in connexion with this subject. All my life I have been constantly taunted with a want of faith in drugs, and yet all the while I have had more real confidence in my remedies than nine out of ten of the men who have charged me with the fault. I have never said a word to encourage such an opinion, and am at a loss to understand its wide-spread existence.*

I believe therefore, most sincerely, that I am giving you the best advice when I request you to gain all the knowledge you can from your teachers as to the best modes which experience has discovered to combat disease, and at the same time to make similiar observations for yourself. You may speculate, if you please, as to what is meant by remedies such as calomel, antimony, or digitalis, being called "antiphlogistic"; but if you wait until you know their *modus operandi*, or what special symptom indicates their use, you will be losing some of the best remedies in the Pharmacopœia. I believe that I have got more credit from the use of digitalis than any other medicine, simply because the patient was considered too weak to bear it before my advice was sought; and during the last two years I have seen three cases of chronic cerebral affection cured by mercury, where all the ordinary nervine remedies which the symptoms had suggested had failed. Remember, I say not a word against sound and scientific therapeutics, and I might admit that in some exceptional cases we have a glimmering of reason associated with the mode of cure; and I rejoice also that we have a journal like the *Practitioner*, which is arduously endeavoring to attain the object we all have in view. That our treatment is empirical, and not scientific, is beyond all cavil. This is evident from the fact that quackery abounds, and that success in our profession is not proportional to a man's knowledge. If a thorough appreciation of symptoms and a rational application of drugs were necessary to the cure of any malady, it would follow that the better educated a man was, the more successful would he be. Quacks would fade from the earth; for their practice would at once necessitate the coroner's inquiry. So far from theory going hand in hand with practice, it is exactly the reverse; and thus you will find that all systems of quackery have their foundation in, or are associated with, a theory; and even with the more orthodox practitioners it is those who nearest approach the borderland of charlatanism who can inform their patients of the "reason" why they select their medicines. Every quack knows it is the theory, and not the practice, which pleases. Thus, Morison's pills would not be swallowed unless they "purified the blood;" nor Parr's life pills, unless they "sustained the vital fluids." I have already alluded to the homœopathic doctrine, which ignores pathology and treats only symptoms. Such a doctrine I believe is quite fatal to the system. But I have something even worse to think about it; for I have much reason to believe that the mysterious dogma, "similia similibus curantur," much assists its supporters in administering their physic and the patients in swallowing it. That this inexplicable doctrine guides them I do not for a moment believe. It is far too subtle to handle: it eludes you the moment you think you have it fairly in your grasp. And this, I take it, must be the case even with its supporters; for you will find that they by no means have a rule to guide them as to what are or what are not the essential symptoms of a complaint, but they are content to take that one which is evident to the vulgar eye, and work upon it. For example, they do not appreciate all the symptoms of scarlet fever, but recognise only the outward condition of red skin with sore-throat, and consequently give belladonna. They do not discuss the meaning of the general symptoms of small-pox, but, in a most superficial manner, discern only the pustules; and they accordingly administer antimony, for the sole reason that it produces a rash resembling that of variola: this remedy they declare will arrest the maturation. Considering the prevalence of these two epidemics in England, and the number of homœopathic practitioners, it is surprising that the Registrar-General has to return so large a bill of mortality every week. So utterly regardless of the nature of disease are these practitioners, that, when writing on such an affection as morbus Addisonii, they will detail the appropriate remedies to cure it, which is tantamount to reconverting the utterly destroyed suprarenal capsules into healthy ones. I judge from my knowledge of the practice of one or two homœopathists that they do not allow their own principles to guide them. I do not wish to be uncharitable, and would in nowise quarrel with any man because he holds a different opinion from my own; but honesty is a matter of morals, and I know that these gentlemen will give large doses of quinine and opium in cases where experience alone must have been their guide, and which, after the most subtle or sophisticated handling, their doctrine could not have suggested. I know that no homœopathic doctor would ignore large doses of iodide of potassium in syphilis, although he is fully aware that the drug has no tendency to produce nodes on the bones or lumps in the testes, but rather the reverse. In a case of which I had a knowledge a homœopathic practitioner administered quinine in large doses and used morphia by subcutaneous injection, and speedily cured the patient. When asked what I should have done, I replied, I should have prescribed exactly the same; but, in turn, requested to know why he had been preferred to me; and the answer was to the effect that he had acted on principle—that is, he knew why quinine cured neuralgia, and I did not; I had gained my knowledge from experience, while he could have predicated the specific action of the drug as deduced from scientific principles. Well, I will merely make this comment upon it. There is a well-known American gentleman of the name of Barnum, and he has written a most interesting and instructive book on what he calls "Humbug." The author says that a man who sells an article not worth the money is a thief or a cheat; but he who gives you value for your money, but entices you to deal with him on account of some plausible tale associated with his goods, belongs to the class of whom he discourses. He alludes, amongst other examples, to a late well-known character, M. Mangin, who made a fortune in Paris by selling lead pencils at two sous apiece. These were excellent pencils, and well worth the money; his customers were therefore not cheated, and he was not an impostor. He did, however, richly deserve another name; for he chose to attract his customers by wearing a helmet and beating a drum, and thus pocketed a fortune while his poorer lead-pencil brethren were starving. I dare say Parr's life pills are worth the money, but it is the word "life" which encourages the public to swallow them. So, really, if it be true that some homœopathic doctors foist upon their patients an inscrutable doctrine to tickle their fancy, and at the same time administer such good physic as their experience has shown them to be useful, such men are by no means to be called impostors, according to the high authority of Mr. Barnum, but they would rather come under the other appellation which forms the title of his book.

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* My only explanation is that it is due to the belief in the incapability of men in our profession doing more than one thing; and just as the tailor who makes your coat cannot by any possibility excel in trousers, so the doctor who cures rheumatism can know nothing of dyspepsia, or he who can advise for epilepsy cannot at the same time be clever with children. So because I, fortunately or unfortunately, had more than the usual opportunities of devoting myself to pathology, so I might be able to tell how rotten a man's inside had become, but I could not by any chance have a notion of any means to rescue him from decay; for what possible connexion could there be between a lung riddled with holes and cod-liver oil, or a Bright's kidney and jalap powder? Thus have I been a victim of vulgar error.

This, then, is another argument against theory in therapeutics: that it forms the stronghold of all the false systems; that charlatanism is entirely dependent upon it; and that the nearer the tendency of anyone to quackery in orthodox medicine, the louder is his assumption of a fanciful doctrine to support him. I hope you will not mistake my meaning. I do not wish to underrate the researches of those who are investigating the actions of medicines, but would hail the time when these could be found to bear fruit, for then would commence a new era in medicine. I do, however, feel that, with our present ignorance of the meaning of symptoms and our greater ignorance of the actions of drugs, we should do far better to administer remedies in accordance with experience; and I say this the more emphatically, because I every day see that fanciful reasons engendered solely in the brain of the doctor have caused him to lay aside many old and most approved remedies. I hope, however, before I have ceased teaching at this school, to be able to adopt very different language from this, and enforce some more strictly scientific rules of treatment. Nothing is more difficult than to shake off the trammels which our own imaginations impose upon us; and thus you will find the good work done by such men as the great Sydenham, the father of English medicine, was by the simple observation of nature and of the operations of the remedies which he gave, at the same time overthrowing the various fanciful methods which he found prevailing in connexion with all diseases. In various places of his writing you will find such passages as this, with which I shall conclude my lecture: "For, without practical observation, that which seems reasonable to me or any other person perchance will be nothing else but the shadow of reason, or a plantasm—that is, mere opinion. And the oftener I converse with men, I am the more confirmed how dangerous it is even for those that are the most acute to rack their brains, and, as it were, inflame them, in the search of any art or science, unless they constitute matter of fact as judge and umpire of truth and falsehood."

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ON THE
SO-CALLED "BONE-SETTING," ITS NATURE AND RESULTS.

By Wharton Hood, M.D., M.R.C.S.

It is known to most practitioners of surgery, and has been made known to many to their great cost and loss, that a large proportion of the cases of impaired mobility or usefulness of limbs after injury fall into the hands of a class of men called "bone-setters." In all these cases it is the custom of such men to say that the affected bone or joint is "out," although there may be an entire absence of the anatomical signs of displacement; and they proceed in due course to the performance of manipulations by which, in many instances, the patient is speedily cured. Teachers of surgery, when they condescend to speak at all of bone-setters and their works, are more prone to dilate upon the injury sometimes occasioned by their so-called "rough" handling, than upon the improvement which it often-times effects. It is doubtless well to caution students against twisting or pulling an inflamed or ulcerated joint; but it would surely also be well to inquire carefully what is the nature of the cases in which bone-setters do good, and what is the change which their manipulations bring about. Mr. Paget, in a clinical lecture delivered at St. Bartholomew's and published in the *British Medical Journal* three years ago, has made an attempt of this kind; but he labored under the serious disadvantage of being guided chiefly by conjecture in his ideas of the nature of the bone-setter's treatment. I shall hereafter have occasion to show that his conjectures were in some respects erroneous, and his conclusions, therefore, not always correct; but at present I need only cite his authority to show the great practical importance of the questions at issue. He says to his students: "Few of you are likely to practise without having a bone-setter for your enemy; and if he can cure a case which you have failed to cure, his fortune may be made and yours marred." It would at first sight seem likely that the conditions thus stated by Mr. Paget could only be realised in the practice of a surgeon of a slender degree of skill, and among the poorer and more ignorant classes of the community. This surmise, however, would be very wide of the truth, for I shall have to relate instances in which the failures have been those of men not less distinguished than Mr. Paget himself, and in which the patients have occupied positions of prominence or distinction. Such cases may not only seriously injure the individual practitioner, but they serve to lower the art of surgery in the estimation of the public. They render it obligatory, I think, upon anyone who may possess the power, to place before the profession a clear account of the so-called bone-setting—of its methods, its failures, and its successes. Before doing so, however, it is necessary to relate how I became possessed of the requisite information.

About four years ago, my father, Dr. Peter Hood, in conjunction with Dr. Iles, of Watford, attended the late Mr. Hutton, the famous bone-setter, through a long and severe illness. On his recovery, my father refused to take any fees from Mr. Hutton, out of consideration for the benefit which he had rendered to many poor people. Mr. Hutton expressed himself as being thereby placed under great obligation, and as being very desirous to do something to show his gratitude. He offered, as an acknowledgment of the kindness he had received, to explain and show all the details of his practice as a bone-setter. Pressure of work prevented my father from availing himself of this offer, and Mr. Hutton then extended it to me. After some consideration, I determined to accept it; and, accordingly, I went, when I could spare the time, to Mr. Hutton's London house, on the days of his attendance there. My decision was prompted, not only by the curiosity I felt to see how he treated the cases that came under his care, but also by the desire to publish to the profession, at some future time, any insight that I could gain into the apparent mystery of his frequent success. I did not feel justified, however, in publishing anything during Mr. Hutton's lifetime, because, although he exacted from me no conditions, he was freely imparting what he thought, and was fairly entitled to think, an important and valuable secret. I have not hesitated, however, to discuss his methods with private friends; and Mr. Hutton's recent death has released me from any scruples about the propriety of making these methods more widely known.

During a second illness from which Mr. Hutton suffered, I took absolute charge of the poorer class of patients whom he was accustomed to attend gratuitously, and found that I could easily accomplish all that I had seen him do. I declined, however, to undertake the remunerative portion of his practice, and from this and other reasons my intercourse with him had wholly ceased for about two years prior to his death. I found, however, that it had lasted long enough to give me knowledge of a kind that is not conveyed in ordinary surgical teaching, and that, when guided by anatomy, is of the highest practical value, as well in preventive as in curative treatment.

In the following papers, therefore, I purpose giving a brief account of the salient features of Mr. Hutton's method of procedure in the treatment of damaged joints, of the results of that treatment, and of the class of cases in which it was successful. And here, in the first place, I must bear tribute to Mr. Hutton's perfect good faith and honesty. He had received but a plain education, was entirely destitute of anatomical knowledge, and firmly believed the truth of his ordinary statement that "the joint was out." To him there was no other possible explanation of a constantly recurring sequence of events. A joint, previously stiff, painful, and helpless, was almost instantly restored to freedom of action by his handling, and the change was often attended by an audible sound, which he regarded as an evidence of the return of a bone to its place. When this to him pleasant noise was heard, he would look in his patient's face and say, in his broad dialect "Did ye hear that?" The reply would be, "Yes"; and his rejoinder, "Now ye're all right—use your limb." To the patient (probably as ignorant of anatomy as Mr. Hutton himself), who had hobbled to him on crutches, often after prolonged surgical treatment, and who went away "walking and leaping," it can be no matter for surprise that the explanation was also fully sufficient.

When I first knew Mr. Hutton, I often tried to argue the point with him, and to explain what it really was that he had done. I soon found, however, that, if I wished to learn from him, I must simply content myself with listening and observing. He had grown old in a faith which it was impossible to overturn.

On my first visit to Mr. Hutton's house he asked me to accompany him to a gentleman whom I will call Mr. A——, and whom Mr. Hutton had seen two years previously. This gentleman, when sitting on a stool in his office, hastily descended to welcome a friend. As soon as his feet reached the ground he turned his body without moving them, and in doing so he twisted or wrenched his left knee. He immediately felt considerable pain in the joint, which lasted for an hour or two, but decreased as the day wore on; and he continued to move about as occasion required. In the night he was aroused by increased pain, and found the joint much swollen. Mr. A—— was the brother of the professor of midwifery at one of the principal medical schools in London, and he had the best surgical advice that London could afford. He was ordered to rest the limb, and to apply heat and moisture. In this way he obtained some diminution of the pain, but the swelling continued. He at last sent for Mr. Hutton, who at once declared that his knee was "out," and proposed to replace it. An appointment for this purpose was made, but in the meantime the patient had again seen eminent surgeons, and he wrote to prevent Mr. Hutton from coming. Two years of uninterrupted surgical treatment passed without improvement, and then Mr. A—— sent for Mr. Hutton again. It was on this, the second visit, that I accompanied him, and what I saw made a great impression on my mind. We found the knee-joint enveloped in strapping; and when this was removed the joint was seen to be much swollen, and the skin shining and discolored. The joint was immovable, and very painful on the inner side. Mr. Hutton at once placed his thumb on a point over the lower edge of the inner condyle of the femur, and the patient shrank from the pressure and complained of great pain. He (Mr. Hutton) made no further examination of the limb, but said, "What did I tell you two years ago?" Mr. A—— replied, "You said my knee was out." "And I tell you so now" was the rejoinder.—"Can you put it in?" said Mr. A——. "I can."—"Then be good enough to do so," said Mr. A——, holding out his limb. Mr. Hutton, however, declined to operate for a week; ordered the joint to be enveloped in linseed poultices and rubbed with neat's-foot oil, made an appointment, and took his leave. During the dialogue I had carefully examined the limb, had satisfied myself that there was no dislocation, and had arrived at the conclusion that rest and not movement, was the treatment required. At the expiration of a week I went again to the house, and Mr. Hutton arrived shortly afterwards. "How's the knee?" was the inquiry. "It feels easier."—"Been able to move it?" "No."—"Give it to me." The leg was stretched out, and Mr. Hutton stood in front of the patient, who hesitated, and lowered his limb. "You are quite sure it is out, and you can put it right?" There was a pause, and then, "Give me your leg, I say." The patient obeyed reluctantly, and slowly raised it to within Mr. Hutton's reach. He grasped it with both hands, round the calf, with the extended thumb of the left hand pressing on the painful spot on the inner side of the knee, and held the foot firmly by grasping the heel between his own knees. The patient was told to sit steadily in his chair, and at that moment I think he would have given considerable to have regained control over his limb. Mr. Hutton inclined his knees towards his right, thus aiding in the movement of rotation which he impressed upon the leg with his hands. He maintained firm pressure with his thumb on the painful spot, and suddenly flexed the knee. The patient cried out with pain. Mr. Hutton lowered the limb, and told him to stand up. He did so, and at once declared he could move the leg better, and that the previously painful spot was free from pain. He was ordered to take gentle daily exercise, and his recovery was rapid and complete. In a few days he returned to business, and from that time until his death, which occurred three years afterwards, his knee remained perfectly well.

A case hardly less remarkable was that of the Hon. Spencer Ponsonby, which attracted considerable attention at the time. As Mr. Ponsonby has kindly written out for me the history of his case, and as his description is very graphic, I cannot do better than give it in his own words. I need only add to it that the initials A, B, C, &c., represent the names of men of considerable standing in the profession.

"On Nov. 26th, 1864, in running across the garden at Croxteth, near Liverpool, I felt and heard something crack in the calf of my left leg. It was so painful that I rolled over like a shot rabbit, and could scarcely reach the house, a few yards off. I at once put my leg up to the knee in a pail of hot water, and boiled it for an hour. Next day, being no better, I sent for a medical man in the neighborhood, who told me I had snapped a muscle, and must keep quiet for a few days. He rubbed in a strong liniment, there being no sign of inflammation; and put on a strong leather plaster. In a couple of days I was able to hobble; but being telegraphed to London, and going into an empty house, I knocked my toe against a tack in the floor, and hurt myself worse than ever.

"From this time (Dec. 2nd) to the beginning of May I was attended by Mr. A and Mr. B in consultation, who agreed in saying that the 'stocking of the calf was split' (gastrocnemius, I think they called it), and treated me accordingly. Occasionally my leg got better; but the slightest exertion produced pain and weakness.

"On the 2nd of May, Mr. C undertook me. He agreed as to the injury, but thought that, constitutionally, I was out of order, and gave me some iron, &c., without effect. My leg was also fixed in an iron machine to relieve the muscles of the calf from the weight of the leg. Another eminent surgeon came in consultation on June 26th. He agreed in Mr. C's treatment, and in the cause of the lameness; as did Dr. D, who was consulted as to my going to Wildbad.

"Aug. 14th.—As I did not improve, Mr. C put my leg into a gum plaster for a month. I then went yachting, and gave my leg perfect repose for that time. My health, which had been getting bad, was improved by the sea air, but my leg was no better. The surgeon on board the yacht, Dr. E, also examined me, and agreed as to the cause of the lameness, but said, 'An old woman may cure you, but no doctor will.'

"On Sept. 7th the gum plaster was removed, and galvanism was then tried for about three weeks. At the end of this time I went on a yacht voyage for four months, and during the whole of this period, had sea-water douches. All this time I had been either on crutches or two sticks. My health was much improved by the sea voyage, but my leg was the same as before, and had shrunk to about half its proper size.

"April 5th.—Mr. F began his system to cure my leg. His idea was that the muscles were separated, but that if brought together continuously, they would rejoin. I wore a high-heeled boot during the day, and during the night my heel was so fixed that it was kept in the same position. No good arose from this treatment, and, consequently, after a month's trial, I went to Mr. Hutton, who, on seeing my high heel, said, 'What do you wear that machine for? Do you want to lame yourself?' I was proceeding to tell him the opinion of the various surgeons on my case, when he said, 'Don't bother me about anatomy; I know nothing about it; but I tell you that your ankle is out, and that I can put it in again.

"After a few weeks, during which he had been to the North, and could not therefore undertake my case, I returned to him on June 27th, telling him that I had in the meantime consulted surgeons who had assured me that, whatever else might ail me, my ankle was most assuredly 'all right,' but that I would notwithstanding submit to his treatment. He again examined me most carefully, beginning at the ankle bone, and he then put his thumb on to a place which hurt me a good deal, and produced a sensation of a sharp prick of a pin. He proceeded to operate upon me, and, after a time, there was a distinct report, and from that moment the pain was gone. Mr. Hutton desired me to walk moderately, but to take no violent exercise for a long time, and to use a good deal of cold water. From that moment my leg gradually got better. I was able to walk out shooting quietly in September, and on the 14th of October, having missed a train, walked home fifteen miles along the high road. In the following year I resumed cricket, tennis, and other strong exercise, and have continued them ever since.

"I omitted to mention that on July 5th, 1866, about a week after my first operation, I hurt my leg again by over-exertion, and was as lame as ever. But Mr. Hutton repeated his treatment, and I have never had another relapse. His statement to me was that, the ankle-joint being misplaced, the muscles were also misplaced, and would not heal."

These two cases, selected from many others, to the explanation of the facts of which I shall come hereafter, are mentioned in order to show that the art of the bone-setter has been required to supplement the best surgery attainable in England, and to cure patients of considerable social position. For the same purpose I transcribe a letter which appeared in the *Echo* newspaper in March of last year, and which serves to exhibit the kind of effect which Mr. Hutton's successful treatment was calculated to produce upon the general public :—

"Sir—A short time ago, a painter, working for me, fell from one floor to another, was much hurt, and sent to Bartholomew's Hospital. After remaining there about three weeks he was sent out as cured, although he could not walk without crutches. After about a fortnight, seeing that he got no better, I sent him to Mr. Hutton, of Wyndham-place, Crawford-street, W., who found that his left hip and knee were both dislocated, which since then he has put into their right places, and the man now comes to his work as he used to do before the accident.

"I have several other cases, showing the incapacity of the surgical profession. They, the students, are taught to know how to amputate legs and arms and make cripples, but not one of them knows how to deal with dislocations, and thus save the necessity of amputation. I have myself been the cause of saving, through Mr. Hutton, two legs from being cut off. Of this I am ready to give positive proof. This question is worth attention, with the view to establish a hospital for dislocations. I am quite ready to assist and be a considerable subscriber, in case the project can be realised.—Yours respectfully,

"THOMAS LAWES.

"65, City-road."

It can be no matter of surprise that the man who is able to cure a defect should be believed in his account of its nature; and a surgeon would only excite incredulty in the minds of non-professional people if he were to deny that any dislocations had ever existed in any of the instances referred to. Such, however, is the fact; and dislocations, in the ordinary sense of the term, formed no part of the cases which Mr. Hutton managed successfully.

I have already referred to the descriptions given by lectures of the "rough handling" of bone-setters, and of the injuries thence arising. Bone-setters abound, and, for all I know, many of them may deserve to be thus spoken of. But, as far as Mr. Hutton was concerned, the censure was uncalled for. Like other people, he may have made mistakes, and may have moved joints that would have been better left alone; but the instances were certainly exceptional. He had indications to which he trusted, and which told him when he could be of use; and I shall have to show that these indications, which with him were either traditional or the results of experience, were in perfect harmony with anatomical and pathological facts, and were, therefore, not calculated to mislead. With regard to "rough handling," he certainly used force; and, in my own earlier attempts to deal with cases, I frequently failed because, restrained by fear of doing mischief, I did not use force enough. But the force was applied in a perfectly definite way, for the attainment of a definite end, and ceased as soon as that end was arrived at. There was no objectless movement hither and thither; but only a movement every step of which was considered and planned beforehand, like the movements of a surgeon in the reduction of an actual displacement.

In the next paper I will proceed to describe the cases treated, both under the aspects which they presented to a non-professional observer, and also in accordance with what I imagine to have been their actual pathology.

The patients who sought aid from Mr. Hutton had, in a very large proportion of instances, been under surgical treatment for some injury; and I could describe no more typical case, and none of more frequent occurrence, than the following :—

A healthy man sustained a fracture of one or both bones of the forearm, and went to a hospital, where splints were applied in the usual way. He was made an out-patient, and the splints were occasionally taken off and replaced. After the lapse of a certain number of weeks the bones had become firmly united, the splints were laid aside, and the man was discharged cured. He said that he could not use either his hand or his forearm, but was assured that his difficulty only arose from the stiffness incidental to long rest of them, and that it would soon disappear. Instead of disappearing, it rather increased, and in due time he came to Mr. Hutton. The arm and forearm were bent nearly at a right angle to each other; the forearm was intermediate between pronation and supination; the hand in a line with it; and the fingers were straight and rigid, the patient being unable to move them, and also unable to move either the wrist or elbow. Passive motion could be accomplished within narrow limits, but produced sharp pain, distinctly localised in some single spot about each joint, in which spot there was also tenderness on pressure. Mr. Hutton would tell the man that his wrist and his elbow were "out." The man would object that the injury had been in the middle of the forearm—perhaps from a blow or other direct violence. Mr. Hutton would reply that perhaps the arm might have been broken as alleged, but that the wrist and the elbow had been put out at the same time, and that these injuries had been overlooked by the doctors. He would then, by a rapid and dexterous manipulation, hereafter to be described, at once overcome the stiffness of the fingers, and enable the patient to move them to and fro. The instant benefit received would dispel all scruples about submitting the wrist and the elbow to manipulation; and these also would be set free in their turn. The man would go away easily flexing and extending his lately rigid joints, and fully convinced that he had sustained grievous harm at the hands of his legitimate doctors.

Cases of impaired mobility, following disease of joints or parts near them, were also of frequent occurrence; but cases of active joint disease were seldom interfered with. Mr. Hutton avoided handling a joint that appeared to his perceptions inflamed—i.e., about which there was manifest great heat or redness, or from which there was purulent discharge; and I have seldom seen him operate when there were open sinuses in the neighborhood.

The cases were, as a rule, chronic, and the existence of some slight mobility (however slight) seemed to be a condition essential to success; and the first inquiries made had reference to the presence of pain. Mr. Hutton's frequent remark, "If there is no pain I can't do much good," showed the value he attached to this symptom. The conditions actually treated I should classify in the following manner:—

1. Stiffness and pain of joints following fracture of one of the bones forming them. These cases are of two classes—(*a*) simply stiff joints, rendered so by want of movement, and by having been included in the splints applied to the fracture; and (*b*) stiff and swollen joints, which had been more or less implicated in the original injury.
2. Sprains, whether of recent date or of old standing, but which had been treated by rigidly enforced rest.
3. Joints that had been kept at rest voluntarily for the avoidance of pain, either after some injury to themselves, or to the soft parts around them, or after some painful disease affecting the latter—e.g., a stiff shoulder-joint following inflammation and suppuration of the bursa beneath the deltoid muscle.
4. Rheumatic and gouty joints.
5. Displaced cartilages.
6. Ganglionic swellings about the carpus.
7. Subluxation of bones of the carpus and tarsus.
8. Displaced tendons.
9. Hysterical joints.

The manipulation of cases of nearly all these kinds has fully convinced me that when a joint is kept at rest it is apt to undergo changes in restraint of movement, affecting either its own structures or those immediately surrounding it. It is probable that some constitutional states involve a special proclivity to such changes, and that they occur earlier in some persons than in others. It would be difficult to speak with certainty about their seat or nature without anatomical examination; but they resist passive motion with a sort of elastic resistance, as if the joints were restrained by ligamentous or strong fibrous tissue. Possibly in some cases the proper ligaments may become contracted or rigid, or adherent to neighboring parts; in others adventitious fibrous bands may be formed; in others muscles may have undergone shortening. Again, effusion may have become solidified, and thus movement be impaired, as if by a state of things analogous to a rusty hinge. It is even probable that one effect of rest may be to diminish secretion (the natural stimulus afforded by movement being withdrawn) both in the articulations themselves and in the sheaths of tendons; and so to produce a kind of unnatural dryness, analogous to that which we may suppose to exist in the case of a horse that is "stiff at starting." In all, however, the impediment to motion becomes a source of pain when motion is attempted; and the pain is often looked upon as an indication for continued rest. A patient will often unintentionally deceive his surgeon by saying that the affected joint "feels weak," an expression that seems naturally to suggest the use of some form of mechanical support. While this is worn it gives a slight increase of power, but its removal leaves the former condition essentially unchanged. The meaning of "weakness" in such cases is that the joint cannot be moved without pain, and people only use the word for want of knowing how to describe accurately the existing condition. Anyone who has ever suffered from lumbago will understand this. A person so suffering feels "weakness" in the sense that the power to rise from the recumbent posture is apparently gone. It is not really gone, but there is an instinctive dread of calling the affected muscles into action; and this dread conveys to the mind an impression of inability to move, which can only be overcome by a most determined effort of the will.

Now the cases in which Mr. Hutton attained his successes were those in which some restraint of movement, due either to an injury, or to the rest consequent upon it, or to both together, and which painfully checked the motions of the joint, admitted of being at once overcome by manipulation. In the case of Mr. A——, described in the preceding paper, no doubt some adventitious band was restraining movement, and that one of its attachments was to the lower margin of the internal condyle of the femur. Pain at this spot was experienced, and further movement was checked, as soon as this band was rendered tense. Its frequent traction upon its insertion caused that part to be constantly tender under pressure; and its generally disturbing influence excited and maintained an irritated and swollen condition of the joint. Mr. Hutton ruptured the band when he twisted and sharply flexed the limb; and all the troubles consequent upon its presence either immediately or gradually subsided. I frequently saw him handling joints which at the time seemed to me not likely to be improved by such treatment; and yet, when the operation was finished and much pain had been produced, the patients joyfully expressed their sense of increased power and freedom of movement.

I have already mentioned that my own early failures to afford the required relief were due to my not using sufficient force to overcome the resistance. I was too tender in my handling, because possessed by a perfectly groundless fear of exciting inflammatory action. Mr. Hutton has often told me that he had never seen inflammation follow his manipulations; and although it is very possible that some persons in whom it did follow may have kept away from him, I have no hesitation in saying that it is not to be feared as a result of forcibly overcoming the kind of restraints to motion that I have been considering. Such restraints would be present in greater or lesser degree in the first four of the classes of cases that I have set down; although in the fourth class, the gouty and rheumatic joints, there would often be such other changes as to render the treatment by movement of only limited utility. Cases of displaced cartilage, too, would often be attended by voluntary restraint of movement for fear of pain, and hence by the formation of some kind of adhesion; and then manipulation might affect the double purpose of breaking the adhesion and of rectifying the displacement.

Ganglionic swellings about the carpus are commonly attended with pain and weakness of the joint. Their occasional stony hardness made Mr. Hutton look upon them as displaced bones; he would not entertain the idea that a bag of fluid could give such a sensation to the touch; and when he found that they disappeared from under his thumb, from the pressure and flexion employed, he would allege that the bone had slipped into its place.

Subluxations of carpal and tarsal bones must have been present, I think, in a considerable number of instances. I mean by subluxation some disturbance of the proper relations of a bone, without absolute displacement; and I believe that such disturbance may be produced either by the traction of a band of adhesion about the joints, or by a twist or other direct violence. I see no other explanation, for example, of Mr. Ponsonby's account of the accident that happened to him after Mr. Hutton's first manipulation. It seems clear that in the first instance the artificial position so long maintained had given rise to some kind of adhesion about the tarsus, the exact spot where pain was so acute being over the upper portion of the calcaneo-cuboid articulation, and that this adhesion was broken through and the foot restored to freedom. But the lameness that was soon after produced by over-exertion, and that was immediately removed by manipulation, must surely have been due to some change in the relations or apposition of the articular surfaces.

Displacement of a tendon is certainly of more frequent occurrence than is usually supposed; and, excluding several cases where the symptoms were unmistakable, I have seen numerous others operated upon in which the alteration in the appearance of the joint immediately afterwards could only be accounted for by this explanation of the injury. In such cases I have made several attempts to make Mr. Hutton abandon his notion that a bone was out, and perceive the true character of the change. He was, however, quite impervious to argument upon the point; and stuck to his single explanation in every case in which his methods remedied a defect.

A certain proportion of "hysterical joints" were treated successfully; and here it was not so much the treatment as the man and the attendant circumstances that worked the cure.

It will be seen from the preceding outline that Mr. Hutton virtually excluded cases of true anchylosis, and cases of acute articular diseases, from the category of those in which he could be useful. Recent fractures were seldom brought to him; and when they came, at least in the only class of cases I ever saw—viz., fractures of the forearm, clavicle, and fingers,—he treated them by strapping and bandaging. In fracture of one of the bones of the forearm this plan answered very well, the purpose of a splint being fulfilled by the other.

In cases or fractured clavicle his plan was to apply three pieces of plaster, each about 2 ft. in length and 2 in. in breadth. He fixed one end of each piece to the centre of the sternum, and drawing the plaster tightly over the fracture, he fastened the other end on the back, below the point of the scapula; the arm was carried in a sling, and the cases usually did very well.

Ununited fractures of old standing were occasionally seen, and they invariably went away unimproved.

Dislocations, in the surgical sense of the word, were almost limited to a few old unreduced cases; and in these the extent of benefit afforded was to increase in some degree the mobility of the head of the bone in its new position.

After having satisfied himself by examination and inquiry that a given case was one suited for his treatment, Mr. Hutton's first step was to feel all round the affected joint for a spot that was painful on pressure, and in all his subsequent manipulations he was careful to fix this painful spot by firm pressure with a thumb. It might be found anywhere about a joint, but more frequently on the inner than the outer aspect; and in each joint it had its most frequent situation—in the hip, over the head of the femur; about the centre of the groin; in the knee, at the lower edge of the internal condyle; in the elbow, over the internal condyle of the humerus; at the wrist, over the scaphoid or semilunar bone; and so on. The painful spot being discovered, the limb was steadied on the proximal, and grasped on the distal, side of the affected joint, the thumb pressure was applied to the seat of pain, and the joint sharply flexed, or flexed and extended, sometimes also abducted or adducted, as the case might be. The direction of movement would depend mainly upon the direction of resistance—a principle which presented itself to Mr. Hutton's mind in the shape of the maxim that "a joint must be put in the reverse way to what it had been put out." The resistance of muscles was overcome, or at least reduced to a minimum, by rotating the limb below the joint as much as possible on its axis. In this way the muscles were thrown out of their ordinary lines of action, and were rendered almost powerless. Mr. Paget, in his lecture from which I have already quoted, says, "Bone-setters violently move the joints against the muscular resistance until the muscles are wearied and beaten." As far as Mr. Hutton was concerned, this description is not founded upon fact, for he by his rotation manœuvre simply evaded muscular resistance, and his manipulations were never so prolonged that muscles could be "wearied and beaten."

The cases referred to in the first paper were all instances in which freedom of movement was restored by a single operation. This, however, could not always be accomplished, and the manipulation was sometimes repeated again and again. In such cases Mr. Hutton attached importance to the production of sensations of tingling in the course of the affected limb, and was not satisfied that he had done all in his power until the tingling extended quite to the tips of the fingers or toes.

Some of the classes of cases that I have enumerated above are sufficiently well known to surgeons; and I think it is, on the whole, clear that the art of the bone-setter rests, in point of fact, upon the frequent occurrence of what may be called a minor degree of false anchylosis, variously produced, and perhaps located in different natural or adventitious structures.

While pronounced degrees of false anchylosis have long been recognised, and have lately, in an increasing number of cases, been successfully broken through, the minor degrees seem to have almost entirely escaped observation; and it is worthy of remark that their partial character has probably served to disguise their nature, and to cause them to be mistaken for more active forms of articular disease. A complete false anchylosis almost entirely prevents movement; while an adhesion that only checks movement will be a constant source of injurious strain upon the structures of the joint, and will be liable again and again to set up acute irritation. It seems, therefore, in the highest degree important that these single or partial adhesions should be fully recognised by the profession; and that it should no longer be left to unauthorised practitioners to treat them successfully after surgeons have failed to do so. For their ready recognition I think Mr. Hutton's two chief indications are fully sufficient, when once attention has been drawn to their occurrence. A slight degree of mobility, checked by pain, and accompanied by a spot tender on pressure, is sufficient, in the absence of any evidence of acute disease, to justify manipulation having for its object the breaking down of adhesions. The chief lesson, however, which these cases should teach is the employment of a method of treating injuries which may prevent adhesions from being formed. To this part of the subject I shall return hereafter.

Perhaps the most noteworthy feature of Mr. Hutton's treatment was the ingenuity with which he rendered the leverage of the limbs themselves available for the purpose of obtaining the power necessary for the accomplishment of his objects, so that he was able to dispense entirely with mechanical appliances. His methods bore to those ordinarily used in anchylosis the same relation that the reduction of a dislocated hip by simple manipulation bears to its reduction by pulleys; and here, I think, surgery may obtain useful hints. It is also noteworthy that he made little or no use of extension. He used to say, "Pulling is of little use: the twist is the thing." And I have no doubt that this method of evading muscular resistance might also be made very extensively useful. The precise manner of applying it to each joint can only be rendered fully intelligible by the aid of figures; and I purpose to enter upon this part of the subject in my next communication.

(*To be continued.*)

OBSERVATIONS ON

PALPITATION OF THE HEART AND ITS TREATMENT.

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The frequency of the disease, and the disproportion often existing between the sensation complained of and the physical signs of disordered action of the heart, have led to the following remarks, in which the term palpitation refers only to the patient's sensation, and is thus used with its popular, though incorrect, signification.

Palpitation is one of those symptoms of a deviation from health, regarded by the subject of it with anxiety, or even with alarm, but of the nature and seat of the cause of which we only possess a slight knowledge, in so far as this consists in a structural alteration of some part of the nervous system.

A further difficulty arises from the fact that palpitation, disorderly or perverted action of the heart, and structural changes of the organ, are not always quite clearly distinguished from one another, and that a definite relationship between structural change or disorderly movement on the one hand, and palpitation on the other, is *necessarily* supposed to exist, whilst there is often no proportion between the inconvenience and pain which the patient suffers, and the signs of perverted action which can be detected by physical examination. The patient has the unnatural and uneasy cognisance of the action of his heart, and from this he seeks release, and is not unfrequently grateful for the cure of a disease of which he only knew the existence; in other words, a "beating of the heart" may be complained of when no deviation from its natural action can be detected; or there may be grave structural disease, and the most disorderly action, and yet the patient may make little or no complaint.

It is quite true that in many cases the heart *throbs* in a manner evident to the observer as well as to the patient; but in a considerable number the patient only can assert such to be the case. Palpitation is so often a mere symptom which, like pain, though quite real, varies in intensity with the individual, that it may be practically regarded as the *subjective appreciation of the heart's action.* Just as a patient who suffers pain after food—"knows that he has a stomach"—is the subject of dyspepsia, so a patient who feels the beating of his heart—"knows that he has a heart"—suffers from palpitation.

In health the heart beats with a frequency varying within narrow limits with each individual, the contractions are performed with regularity, and in definite order, best expressed by the term rhythmical. Any deviation from this state is a *derangement* of the heart's action, and affects either the frequency, order, duration, or intensity of its movements, and the knowledge of such alteration on the part of the subject of it, or even of the normal action, constitutes *palpitation.* Changes in point of frequency and of intensity, whether real or apparent, are more usually associated with sensation than those of order or duration, so that in a case of palpitation, if any physical signs exist, there will probably be increased frequency and force of the heart's contractions.

The pathology of palpitation, as of perverted movement, is at present little known. There is no doubt, however, that it is to be studied in the altered structure of the nervous ganglia and plexuses connected with the heart, the centres of the vagi and sympathetic nerves, and the base of the brain and the spinal cord.

The exciting causes of palpitation are the various attitudes of mental and bodily excitement; overwork of the heart, as in severe physical labor; mechanical displacement of the organ; certain conditions of the blood, whether naturally acquired or due to the introduction of substances from without; inflammation of the heart; reflex causes, as impressions on other organs having a nervous connexion with the heart; and also certain conditions which, like those giving rise to attacks of neuralgic tic, are for the most part at present unknown.

A scientific classification of cases of palpitation is not at present possible from our slender knowledge of its pathology, and from the want of proportion between the disease and its physical signs. The following arrangement is simply one of convenience, as it throws together cases more or less resembling one another in their clinical history and progress.

(*a*) Cases occurring in persons free from structural disease of the heart, and of any organ having a nervous connexion with it. Two classes of these patients are met with—the young in whom degenerative changes have not commenced, and those in middle or advanced life in whom they have made considerable progress.

1. Palpitation occurs in young persons of both sexes, but especially in women, in whom it is often associated with pleurodynia. A mild form of irri-

tative dyspepsia, and paleness not amounting to anæmia, are sometimes present. There is a history of impaired health, often dating from the time of the commencement of the catamenia, or of some moral shock in the nature of an affliction or disappointment, and a "beating at the heart" is complained of on the least exertion or excitement. The touch detects increased force of the heart's impulse; to the ear there is augmented intensity or abruptness of the sounds, and their frequency often exceeds that of health. Usually there is no irregularity, but now and then there is an intermission, or one or other sound is reduplicated. In these cases there would appear to be exalted susceptibility of the heart to emotional impressions, or to trifling demands of extra work, such as is required in going up stairs, together with impaired nutrition of its nerves.

2. Palpitation occurring in middle or advanced life, apart from other diseases, is probably one expression of that degeneration affecting the nervous system which is at this period of life making progressive inroads on the integrity of every structure of the body. The clinical history of such cases accords with this view. The palpitation is often of long standing, and has come on gradually, appearing after some serious illness, recovery from which has been slow, or is ascribed to some heavy affliction which has impaired the health. It is more common in women than in men, and sometimes dates from the cessation of the catamenia. The least exertion or excitement brings it on; it often disturbs sleep, is essentially chronic, and is apt to recur after apparent cure. Physical examination reveals a weak diffused impulse, irregular in force and frequency, and often with intermissions; or it may be that the action is regular, but somewhat abrupt. Usually, however, the regular, abrupt impulse of earlier life is absent. These patients are often the subjects of dyspepsia, due probably to a degeneration of some of the glandular structures of the stomach, but the palpitation will persist long after the digestion has been fairly restored by the adaptation of diet and exercise to the lessened power of the stomach.

(*b*) Cases of *distinctly* reflex origin. These are few in number, and are chiefly the results of the ingestion of food improper in quantity or quality, removal of which gives speedy relief. Probably, as our knowledge increases, this class will be largely augmented.

(*c*) Palpitation, associated with structural disease of the heart or its valves, occurs at all ages. It is not a prominent symptom of these diseases (except of fatty degeneration), in the ordinary use of the term, which includes changes of the valves, causing murmurs, obvious hypertrophy, or dilatation sufficient to lead to the grave consequences of over-filling of the venous system, and appears to be rather the effect of impaired nutrition of the heart and its nerves than of the mechanical faults of the organ. Its characters are those of the palpitation of middle life previously considered, except that it is, perhaps, less closely connected with excitement or exertion, and is often not so amenable to treatment. An abrupt throbbing impulse is more frequently absent than present.

(*d*) Palpitation is sometimes due to mechanical displacements of the heart, as by pleuritic fluid, pericardial effusion, and tumours of the chest and abdomen. The patient feels the beating of his heart; but physical evidence of deranged action is very frequently absent.

(*e*) Palpitation occurs as a prominent symptom in certain conditions of the blood, as in simple anæmia, leucocythæmia, in gout, and especially in exophthalmic goitre. It is also occasioned by the presence in the blood of substances introduced from without, as in the case of tobacco-smoking and the use of strong tea.

(*f*) The cases comprised in this group are characterised by the occurrence of palpitation in definite attacks of sudden access, and by the proportion which is preserved between the perversion of the heart's action and the patient's sensations; and also by the evidence of the disturbed innervation of organs connected with the heart. They form the transition, as it were, from palpitation to angina pectoris, and present some analogy to tic, both of the neuralgic and painless kinds. The attack commences often without obvious cause; the heart's contractions are greatly increased in frequency, intensity, and abruptness; they may be regular and violent, or exhibit the extreme of disorder. The pain may vary from slight soreness and uneasiness at the præcordia to extreme agony, associated with the impression of impending death; and a sick and faint feeling with one may, with another, become repeated vomiting and actual syncope. Griping pains in the abdomen and diarrhœa are sometimes present. Such attacks are met with in gout, exophthalmic goitre, rheumatic inflammation of the heart and its membranes, in cyanosis, and sometimes when there is no discoverable disease. That they are neuroses of the heart is rendered probable by their analogy with tic just referred to, and with those forms of neuralgia of sudden access; and this is especially the case when no changes in the heart can be detected. The very frequent, abrupt, regular action of the heart seen in an animal, as the dog, after section of the pneumogastric nerves, recalls such cases to the mind, and prompts the question whether they may not be due to temporary and partial suspension of the functions of these nerves.

The cases briefly related below, two of which I examined after death, illustrate this form of palpitation.

Palpitation; hypertrophy and dilatation of the heart; pericarditis.—J. H——, aged twenty-three, was a patient in University College Hospital in the vacation of 1867. He states that two years ago he was confined to the house for a week with pains in his limbs. Eleven days before admission he was at work in his usual health, when he was seized with sudden pain over the heart, with faintness, and with a sensation of palpitation. These symptoms somewhat abated, but nine days afterwards he was observed to be rather livid. On admission there was slight lividity, and the veins of the neck were a little distended. Præcordial pain and dyspnœa were severe, and vomiting, which had occurred previously, was now frequent. The heart's impulse was seen over a wide area, from outside the nipple line to the sternum; and the præcordial region was unduly prominent. To the hand the impulse was violent and irregular in the highest degree, and a loud systolic murmur was heard both at the apex and at the base. During the night the pain and restlessness were extreme. The next day the face appeared somewhat swollen; the head and hands were sweating profusely, whilst the rest of the body was dry and cool. The pain became agonising, but was greatly relieved by hyperdermic injections of morphia, repeated from time to time. Two days after, and fifteen from the commencement of the attack, the patient died. At the post-mortem examination eight ounces of orange-colored fluid were found in the pericardium; and on the heart, about the root of the great vessels, was a little recent lymph. The heart was greatly dilated and hypertrophied, especially on the left side. The valves were stained yellow. There was considerable thickening of the aortic and mitral valves, but no deposits of fibrin were found on these or on the other valves, which were quite healthy; nor was there rupture either of the segments or of any of the valvular apparatus. The blood was fluid in the heart, or very recently coagulated; and no ante-mortem clots were met with either here or in the pulmonary vessels or in the great vessels of the neck. The extreme severity of the symptoms, and the absence of post-mortem evidence of a sufficient cause, point to the nervous origin of the palpitation in this case, which, in truth, differs little from angina.

Cyanosis, with attacks of palpitation.—J. D——, aged two years, was a patient in the York Dispensary. The mother said the child had been bluish almost from birth, and had been subject to fits of sickness and pain, in which its color became darker and mottled. The light hair and other peculiarities of cyanotic children were present in a marked degree. Together with evidence of considerable enlargement of the heart, there was a loud, sharp ,systolic murmur heard all over the front of the chest, but with greatest intensity at the mid-sternum, opposite to the interval between the third and fourth left cartilages. On three occasions the child was brought to me in a "fit" which presented the appearance of severe cardiac dyspnœa and angina; the whole surface was intensely cyanotic; the heart was felt beating very frequently, abruptly, and with some violence, but quite regularly; the murmur, however, had disappeared—an observation which was verified during another attack, six days afterwards,—whilst it was loud and distinct the next day, when the heart was acting quietly. Violent purging accompanied these attacks. The child died six weeks afterwards.

At the post-mortem examination, the heart was found considerably dilated and hypertrophied, especially the right ventricle. At the base of the septum ventriculorum was an opening the size of a hazel-nut, and immediately over it arose a single vessel ·7 of an inch in diameter. The valves of this aorto-pulmonary vessel were somewhat thickened, and the mitral and tricuspid valves were nodulated from old inflammation. No mechanical cause was found to account for the attacks of palpitation and of dyspnœa, nor for the absence of murmur during their occurrence. The foramen ovale was oblique, and just permitted a surgeon's probe to pass through it.

The third case is that of a gentleman aged fifty-nine, who, but for attacks of palpitation, enjoys good health, and is not the subject of gout or other disease. He has had occasional attacks of palpitation for some years, but recently they have assumed especial severity and recur every two, three, or four weeks. They commence without premonitory symptoms, except perhaps a trifling sensation at the præcordia, the patient having felt particularly well for a day or two previously. Suddenly the heart begins to throb with some violence and with remarkable frequency, and continues to do so perhaps for some hours, when, as the sufferer himself informs me, the action becomes irregular and intermittent, and, in time, again rapid and abrupt as at the commencement. A feeling of sickness and faintness is present, but vomiting is rare, though it shortens the attack, and has on this account been induced by mustard-and-water. Syncope has now and then occurred. When the attack has lasted some hours, a feeling of soreness is experienced over the heart, and in time is attended with marked tenderness. Sleep is almost abolished. After thus continuing for three or four days and nights, the palpitation suddenly ceases, its termination being announced by a sensation at the episternal notch. Physical examination of the heart in its period of calm reveals some enlargement of the organ, but murmurs and irregularity of action are entirely absent, except reduplication of the first sound. The pulse has a frequency of 56; its sphygmographic tracing is that of health. During an access of palpitation, the heart's contractions are so rapid as to render the pulse uncountable; no murmur has been present, but the impulse has been rather violent, abrupt, and remarkably frequent, but quite regular, forcibly reminding me of the beating of a dog's heart after division of the pneumogastric nerves.

The association of acute pericarditis and anginal symptoms is peculiar; but a case in some respects similar is related by Andral ("Clin. Méd.," vol. iii., p. 19). Attacks of palpitation and dyspnœa occurring in cyanosis are described by Dr. Walshe; but I have not met with a case recorded resembling that last described.

TREATMENT.—The removal of the immediate *cause*, when this can be ascertained, is the first indication. If strong tea or tobacco-smoking is at fault, this should be prohibited. If acidity of the stomach is the cause, a few grains of bicarbonate of soda, with a little magnesia, will give relief.

Hygiene and Diet.—An endeavor should be made to reduce the nervous susceptibility so frequently present, especially in women, by inculcating habits of self-control; and, to this end, change of scene and of society, as well as some occupation, are valuable aids. Over-work, of the brain especially, and of the body should be avoided, and the encouragement of the depressing passions should be firmly discountenanced.

The diet should be adapted to the digestive powers; this is most essential in middle and advanced life, and the irritative dyspepsia often present should be treated. The bicarbonate of soda, with ammonio-citrate of iron, shortly before meals, is very useful for the purpose. Regular and moderate exercise in the open air is desirable.

Reconstituent remedies of all kinds are of great service, especially iron, not only in marked cases of anæmia, but whenever the general health and tone of the system are impaired; the solution of the sesquichloride of iron is a convenient form, in doses of from fifteen to thirty minims. In those chronic cases in which the health improves under such treatment, whilst the palpitation persists, I have found the liquor arsenicalis, in doses of three minims and upwards, give relief in two or three days' time. Cod-liver oil may often be given with advantage.

The diffusible stimulants and anodynes are all useful, particularly during attacks of palpitation.

They relieve the faint, sick feeling, and the pain; and sometimes lessen the irregular action of the heart, and promote sleep. The most valuable of them for the latter purpose is chloral, in doses of ten to thirty grains, once or twice during the night; since sleep follows its use in a few minutes, and nausea and constipation are not experienced the next day, and very rarely headache. Its continued use does not appear to be attended with inconvenience. Opium is useful, but it is not so well borne; it is best associated with ammonia and spirit of chloroform. Digitalis, except in the obviously weakened and dilated heart, has no marked effect; but in such cases the infusion, in doses of two drachms and upwards, is most valuable. Of all remedies, I have found the subcutaneous injection of morphia to be the most trustworthy; it nearly always alleviates, and very frequently cures, the complaint after a few repetitions. One-twelfth to one-tenth of a grain is a sufficient dose to begin with, and there is little occasion to exceed this quantity. The injection should be repeated every third or fourth day. Though the arm is the most convenient place to insert the needle, the injection is sometimes more effectual at the præcordia. When morphia fails, or is not tolerated, atropine may be substituted; but is not, I think, so useful. If the prick is objected to, the morphia may be applied to the derma denuded by a small blister raised with ammonia, as Trousseau recommends. The hypodermic application of morphia has the additional advantage of relieving pain.

Local applications are of great service. Belladonna and its preparations stand in the first rank of these. The ordinary belladonna plaster, of good size and renewed every week or ten days, is very convenient and effective. It presents three special advantages: it protects the chest walls, which are tender, from the pressure of the clothes, and seems to deaden the painful impulse of the heart; besides this, it impedes slightly the free movement of the parts, and thus obviates the muscular pain often present. Another good application is a mixture of equal parts of belladonna and of liniment of chloroform, sprinkled on cotton wool. Hot linseed and mustard poultices are soothing, and are easily obtained.

Two methods of direct mediation of the pneumogastric and sympathetic nerves have been proposed, which are steps in the direction of scientific therapeutics, and well deserve study. Dr. Althaus has advocated the application of the galvanic current to these nerves in their course ("Medical Electricity"), and Dr. Augustus Waller their compression in the neck by the thumbs (*Practitioner*).

Harley-street, W., Jan. 1871.

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CLINICAL NOTES

ON THE RELIEF OF NOCTURNAL DYSPNŒA ARISING FROM DISEASE OF THE HEART.

By S. O. Habershon, M.D.,

Physician to Guy's Hospital.

Breathlessness and palpitation are two of the most prominent signs of disease of the heart; and they are so for this obvious reason, that respiration can only be properly maintained when the equilibrium of healthy action between the lungs and the heart persists. Any disorder in the mechanism of the heart may cause difficulty in breathing. The general indications of the numerous diseases of the heart are sufficiently distinctive; but whilst some disorders are due to the state of the nerves of the heart, others are traceable to the altered composition of the blood; some organic affections are caused by an abnormal condition of the muscular fibre of the heart and its vessels, others to morbid change in its valves or in the size of its cavities. In all these maladies shortness of breath is a symptom, and this breathlessness and gasping dyspnœa are especially distressing from the paroxysms which occur during the hours of the night.

The medical attendant is rendered too familiar with such expressions as the following: "I have to sit up for hours at night"; "as soon as I lie down the difficulty comes on"; "I should do very well if I could get a night's rest"; "I have not had a night's rest for weeks." The desire is most urgent for immediate relief, if that is by any means attainable. In numerous instances the cause of the cardiac affection can be removed, and that is the best mode of mitigating the distressing symptom; but in many organic diseases, where the cause cannot be removed, the exhaustion from want of rest aggravates the primary malady, and hastens the fatal issue. The instances of cardiac dyspnœa may be grouped into three classes, and the means of affording relief will to some extent vary in each division.

In the first class are cases of *failing power of the heart's action from loss of blood, and from sudden shocks to the nervous system.* In these cases the action is feeble and often irregular, the pulse quick and irritable; the patient starts from sleep alarmed and terrified, and is sometimes afraid to sleep on that account. The first sound of the heart is short and indistinct. The best treatment consists in the administration of nourishment, in the proper use of stimulants, as ether, ammonia, and the less diffusible ones of wine and ardent spirits, and afterwards in the employment of the preparations of steel, &c. If this condition be associated with sleeplessness or pain, then narcotics, as opium, hydrate of chloral, the spirit of chloroform, &c., will be resorted to with advantage. Although opium interferes with the secretions, and produces constipation, still its stimulant effect renders it additionally valuable in exhaustion.

In a second class the cardiac disease consists in *imperfection of the mitral valve*, with or without dilatation of the left ventricle. This condition is shown by abnormal sounds in the plane of the mitral valve, by small and irregular or intermittent pulse, by hæmorrhage from or congestion of the lungs, by enlargement of the liver, by congestion of the kidneys with scanty and often albuminous urine, by flatulent distension of the stomach, by anasarca of the lower extremities, and by ascites. The nocturnal dyspnœa is often most distressing, but it is relieved in a much less degree by stimulants and by narcotics than the former class of cases. The most effectual method of relieving the dyspnœa is by diminishing the tension on the right side of the heart, and the congestion of the lungs, liver, and kidneys, by small doses of mercurials, with squill and digitalis, by diuretics, as the nitrate, the bitartrate, the iodide and nitrate of potash, &c., and by gentle purgatives, especially such as induce free and watery action of the bowels. These remedies will afford more relief than opium, morphia, or ardent spirits; the benefit arising from the latter is very transient, and is often followed by increased distress.

In a third class of cases, we find the same symptom of nocturnal dyspnœa produced by *failing muscular power of the heart*, from degeneration of the muscular fibre, from an atheromatous condition of the vessels, from idiopathic anæmia, from disease of the aortic valves and dilatation. If there be congestion of the lungs and distension of the right side of the heart, the means just referred to may be employed with advantage; but we may find the most distressing paroxysms of breathlessness without any such congestion. Stimulating narcotics should be used, as the spirit of chloroform, camphor, senega, ammonia, and Indian hemp; opium and morphia may be given with great caution, and so also the hydrate of chloral. In all these forms of cardiac disease, nervous excitement should be avoided. The patient should abstain from muscular exertion, bronchial irritation, from exposure to cold and wet and from sudden changes of temperature, must be guarded against; and, if possible, congestive conditions of the liver and kidneys, constipation of the bowels, and flatulent distension of the stomach, should be prevented. The principal meals should be taken early in the day, when digestion is most active. Starchy food should be abstained from at night, and the temperature of the surface should be carefully maintained. But when all these things have been attended to, and rigidly carried out, the paroxysms of dyspnœa still distress the patient, and in organic diseases constitute the great burden of complaint. Can any extraneous help be afforded, and are drugs of any value in mitigating this condition? I would reply in the affirmative. But, first, what is the condition with which we have to contend? It is dyspnœa and cardiac distress from a disturbance of the equilibrium in the action of the heart and lungs. Both organs receive large supplies of the vaso-motor or sympathetic nerve. Those nerves which regulate the respiratory act are in close connexion with the centres in the brain and spinal cord; and, although independent of voluntary control, the respiration can be greatly assisted by supplemental muscles under the regulating power of the will. In disease there is *greater* irritability of these cardiac nerves; the equilibrium is *more* easily disturbed, and relief is afforded by quieting the irritability, whilst we do not diminish the sensibility of the respiratory centres. If the lungs become surcharged with blood, if the respiration be impeded, then the right side of the heart becomes more embarrassed, and distress and dyspnœa at once result. During sleep the assistance of voluntary muscles is withdrawn; and if the maintenance of this equilibrium absolutely requires voluntary assistance, then the patient is unable to sleep, or, if consciousness be lost, there is a sudden start or fright, followed by hurried breathing or gasping for breath. If we can render the heart independent of this supplemental action, the patient will have comfortable rest. We seek to attain to this condition by the help of medicines. The remedies I have adverted to are the following:—Morphia and opium, foxglove, conium, belladonna, Indian hemp, senega, camphor, alcohol, ether, chloroform, and the hydrate of chloral.

Opium and morphia.—In functional irritability of the heart, these are valuable remedies, but less so in organic diseases. The distress of the patient is often aggravated by them, and sometimes additional excitement is produced. The cardiac nerves are quieted, but the respiratory centres are narcotised; and if the patient sleeps, he awakes with increased distress. The secretions are checked, and the heart's action thereby embarrassed. In some instances, where the hypodermic injection of morphia has been used, patients have entreated that it might not be repeated. Very small doses of morphia, however, often prove efficacious in relieving excitement, although not administered in sufficiently large doses to produce profound sleep; large quantities of morphia always tend to increase the pulmonary congestion, and to depress the action of the heart.

Foxglove is a favorite remedy, and in some instances it is of great value. Its primary action appears to be that of a stimulant to the heart, and afterwards that of a sedative. Its effect is manifested more upon the cardiac than upon the respiratory nerves, and hence it is a more serviceable medicine than opium. Foxglove acts best in cases of imperfection of the mitral, when there is much irregularity of the heart, and is advantageously given with squill and small doses of mercurials, or with diuretics, as the nitrate or citrate of potash. But whilst I have often witnessed great benefit from its use in quieting and in regulating the pulse, in relieving dyspnœa, and in acting on the kidneys, I confess that I always watch its free administration with fear, on account of the numerous instances of sudden and fatal syncope coincident with its employment in full doses. Foxglove may be given more freely when combined with steel, and it is certainly a most effective remedy in cardiac disease.

Conium and *belladonna* are of especial value in those cases where there is spasmodic contraction of the involuntary muscular fibre of the bronchi; that is, where bronchitis or bronchitic asthma is associated with heart disease. In simple cardiac dyspnœa they are uncertain, and only slightly palliative in their action.

Stimulants, in the form of alcohol, ether, chloroform, carbonate of ammonia, are helpful for a different reason; they directly stimulate the cardiac nerves, and the flagging muscular power is roused to fresh effort. But alcohol has the disadvantage, if given continuously, of producing hepatic congestion, and of interfering with the free elimination of effete products. Chloroform and ether have in many persons a secondary sedative effect on the heart, and afford only very temporary relief. The carbonate of ammonia in full doses is deserving of a fuller use than it has generally received. Ten or fifteen grains may be given with syrup, and whilst the primary stimulant effect on the vaso-motor nerve is beneficial, the secondary action on the skin and on the glands is also salutary. The aromatic spirit of ammonia is less energetic in its action, and may be given in full and repeated doses with the next remedy to which I have to allude—namely, camphor.

Camphor is a cardiac stimulant, but its action is transitory and somewhat uncertain. If there be much flatulent distension of the abdomen, it is certainly palliative; but in order to act with any power it must be given in fuller doses than the watery solution.

Senega is an old remedy as a stimulating expectorant, and it was a favorite one with my late esteemed colleague, Dr. Barlow, who often used it in disease of the aortic valves. I have often prescribed it with benefit in other affections of the heart. It seems to exert a stimulant action both upon the respiratory and cardiac nerves, and tends to lessen paroxysmal attacks of dyspnœa at night.

Indian hemp is another remedy which I have found very efficacious in promoting rest in cardiac diseases. The extract or tincture may be given alone or in combination, and although in this we have a medicine which exerts more marked influence upon the cerebrum, still its subsequent sedative action is more manifest upon the cardiac than upon the respiratory centres; and in this respect it is often more efficacious than opium. Both senega and Indian hemp deserve fuller trial than they have generally received in these instances, and I can testify to their beneficial effect in many cases.

The *hydrate of chloral* has been very extensively used as a hypnotic, and in numerous instances it induces calm and refreshing sleep, without any subsequent ill-effects; but where there is great dilatation of the heart, or much weakness of the muscular fibre from degeneration, its employment is not altogether free from danger. In a case of distressing sleeplessness from aortic disease, with imperfection of the valves, twenty grains of the hydrate of chloral produced speedy unconsciousness, which continued for nearly twenty-four hours; but, although so alarming for a time, no ultimate injurious effect could be ascribed to the medicine. In other cases, forty grains have failed to produce any sleep, and the patient has requested that the dose might not be repeated. Where there is much pulmonary congestion, I regard its action as still more hazardous; for whatever may be the primary effect of chloral, its secondary action seems to be that of a depressant, both upon the muscular fibre of the heart and upon the pneumogastric nerve; and if no sleep is produced by it, the system becomes excited, the countenance flushed, the brain disturbed, and we have the semi-intoxicating effects of alcohol, without the benefit of its stimulative action. But whilst stating this, I regard the hydrate of chloral as a most valuable addition to our list of medicines, although less serviceable in cardiac sleeplessness than where there is no organic disease of the heart or lungs. The hydrate of chloral will often act very admirably for once or twice, and then altogether fail in affording relief.

These remedies have been separately mentioned because one and another will be anxiously tried, but often tried in vain, in extreme cases of cardiac disease. The agonising distress of intense dyspnœa is most painful to witness; and although medical skill can do much to relieve disease of the heart, all the resources of our science are required even to palliate the symptoms where the injury arising from organic defect has produced such a state of embarrassment that the necessary mechanical action can scarcely be performed. As a rule, greater relief to cardiac dyspnœa is afforded by lessening the distension of the cavities of the heart, and thereby diminishing its embarrassment, than by urging it to increased mechanical effort by the repeated administration of direct stimulant.

Brook-street, Grosvenor-square, Feb. 1871,

AN
ANALYSIS OF 800 CASES OF SMALL-POX,

OBSERVED DURING THE PRESENT EPIDEMIC IN THE HAMPSTEAD SMALL-POX HOSPITAL.*

By Dr. Grieve,

Medical Director to the Hospital.

As we are now in the midst of a visitation of small-pox of intensity almost unprecedented, at least since the introduction of the practice of vaccination, and as public attention is strongly directed to the subject, I have ventured to present to the notice of this society a brief statistical analysis of the first 800 cases of small-pox treated at the Hampstead hospital. From the fact that some of the patients are still under treatment, complete accuracy cannot be guaranteed, but the results approximate very closely to accuracy, as the last of the number entered the hospital on the 18th of February, and in this disease the greater portion of the deaths occur within a week of the patient's admission. The deviation from the final and absolutely complete return cannot therefore be enough to invalidate any of the deductions made. The 800 cases were admitted between the 1st of December, 1870, and the 18th of February, 1871. For the greater part of that time the only provision for the public treatment of small-pox in London, in addition to the accommodation provided at Hampstead, was the Small-pox Hospital at Highgate, which was full on the first-mentioned date. The parishes had not then any of the local establishments which they have since improvised. The consequence was that, out of the very large number of cases constantly standing in need of removal, the worst were culled to be sent to the hospital, and this fact must be borne in mind when considering the percentage of mortality, which has been high. Independent of this, however, there can be no doubt that the present epidemic is characterised by an extreme virulence in the type of the disease manifested, and a very marked feature is the large number of cases of the hæmorrhagic form which are seen. By writers this is described as a rare variety, but unfortunately rarity has not been its distinguishing feature in this outbreak. A large proportion of the mortality in the Hampstead hospital amongst vaccinated adults has arisen from variola hæmorrhagica, a form which, I am sorry to say, in our experience has proved uniformly fatal. Undoubtedly it is the development of the small-pox poison in very congenial soil; its presence is rare indeed in persons under the age of puberty, but too common in people who have lived in defiance of all sanitary laws, or who by intemperance have debilitated their constitutions. I cannot call to mind a single well-marked case of this variety occurring in a child. It chooses its victims amongst those who always suffer in epidemics; and as small-pox may be said now to have the field to itself, it kills those who, under other circumstances, would have fallen victims to cholera, typhus, or any other zymotic.

As to vaccination. Of the 800, 591 were vaccinated and 209 were not. Amongs the vaccinated are included only those upon whose arms some kind of marks could be distinguished. And this large ratio of unvaccinated cases may help to account for the high general mortality. When we come to examine the relative proportions of vaccinated to unvaccinated admitted at different ages, the result tends to shake one's belief in the commonly accepted doctrine that liability to small-pox decreases with advancing age. While under ten years of age the unvaccinated admitted are to the vaccinated admitted as 2 to 1, between ten and twenty the proportion is more than reversed, and the vaccinated are as 4 to 1 to the unvaccinated, which becomes 5 to 1 between twenty and forty, and 9 to 1 over forty years of age. The number of unvaccinated shows a regular diminution in advancing periods: below ten there were 103 admitted; between ten and twenty, 46; between twenty and forty, 56; over forty, 4. I believe that very few unvaccinated people reach forty without having had an attack of small-pox, and that this accounts for the diminished mortality amongst adults to the number living; and this view is borne out by an account published the other day of the results of a visitation in search of unvaccinated persons in St. George's-in-the-East. The report says: "The numbers of persons discovered unvaccinated in the course of the visitation were as follows: 589 under three years of age, 168 between three and fourteen years of age, and 10 adults." From this it would seem either that vaccination has been much more neglected during the last three years than in the preceding eleven; or, more likely, the last epidemic of small-pox has had something to do with thinning the ranks of the unprotected.

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* Read before the Epidemiological Society, March 8th, 1871.

If in the census which is to be taken soon the fact of being vaccinated or unvaccinated were stated concerning each individual, the result would be a large amount of valuable information. But a good deal might be done towards elucidating this point by medical men who are in the habit of examining recruits for the army or police force. It is needless for me, I hope, in an assembly chiefly composed of medical men, to express my firm conviction and belief in the powerful effect exercised by vaccination over subsequent small-pox. I conceive its benefit is shown in three ways; it lessens the liability to take small-pox; it reduces the consequent mortality; and it mollifies it even when it does occur, so as to change it from one of the most loathsome and fatal of all the zymotic diseases (as assuredly it was before Jenner's discovery) into a comparatively mild and harmless attack. And even when a fatal result ensues in a vaccinated case, as certainly frequently happens, the cause lies as much in some constitutional deficiency as in the disease itself, and the outward manifestations are never as severe as in the unvaccinated. One very marked difference is in the size of the pustule, which, I may say, is almost invariable. In the unvaccinated you have a large, round, flattened pustule; in the vaccinated you have a smaller acuminated one. These figures prove the foregoing assertions as to mortality: of 591 vaccinated cases, 58 have died, being a percentage of 9·8; of the 209 unvaccinated, 96 have succumbed, a percentage of 45·8. The difference is perceptible enough. Now, as to severity of the disease. In vaccinated cases it has been found necessary to detain on an average twenty-four days in the hospital; unvaccinated have to be kept thirty-five days.

Does the effect of vaccination wear off? The Registrar-General, acting upon the supposition the fallacy of which in one way I have shown before, answers this question in the negative; but the experience of these 800 cases teaches differently. He, in treating of this question, took the gross mortality, both vaccinated and unvaccinated, at different ages, and so made his deductions. The great fatality amongst the unvaccinated is in infants, and so the gross mortality in infants is raised; but take the vaccinated separately, and we find under ten years of age it is 9 4–5 per cent.; between ten and twenty, 2 4–5 per cent.; between twenty and forty, 12 3–5 per cent.; and over forty, 22 1–2 per cent. There is an apparent contradiction here, when we have a larger per centage under ten years of age than between ten and twenty; but all engaged in practice know that in very young infants, in all disorders, complications carry them off; and that really a great part of the mortality in these cases may be put down to bronchitis, teething, &c. From twenty onwards the percentage of deaths amongst the vaccinated increases steadily. To go safely to work, then, revaccination ought to be performed somewhere about the age of puberty. The value of revaccination as a complete preventive against small-pox has been proved by Mr. Marson's experience at the Small-pox Hospital; and as far as ours goes at Hampstead it confirms it. We have sixty officials connected with the hospital, who are constantly in contact with the sick; and in the three months we have been open not a single case has occurred amongst them. A curious thing also is, that of the 800 cases under discussion to-night not one could prove that he or she had been revaccinated; while we had two suffering from a second attack of small-pox.

A noticeable feature in the class of people attacked is, that for a considerable time the number of men sent to the hospital by far outnumbered the women and children. Now we have many applications for the latter: the men, who, among the working classes, from their more active habits, are more likely to come casually in contact with the disease, have evidently taken it home, and from them their wives and families have been affected.

The number of our patients who are in occupations bringing them in contact with the public, such as barmaids, shop men and women, 'bus- and cab-drivers, &c., shows that, to prevent a contagious disease from spreading, nothing less than compulsory isolation while the contagious power remains is sufficient.

There are other points connected with these cases which I may have an opportunity of bringing before your notice when the epidemic is over, and more leisure to give to their notation than there is at present. I will read the numbers admitted, at the different ages, of vaccinated and unvaccinated, and the mortality and percentage during those periods:—

There were 800 cases admitted between the 1st December, 1870, and the 18th February, 1871.

	No. admitted.	Deaths.	Per-centage.
Under 10 years, vaccinated ...	51	5	9·8
Ditto unvaccinated ...	103	54	52·4
Between 10 and 20, vaccinated...	211	6	2·8
Ditto unvaccinated ...	46	13	28·2
Between 20 and 40, vaccinated...	289	38	12·7
Ditto unvaccinated ...	56	26	46·42
Over 40, vaccinated	40	9	22·5
Ditto unvaccinated ...	4	3	75
	800	154	19·25
Total vaccinated...	591	58	9·8
„ unvaccinated	209	96	45·8

I may mention that the applications for beds show no diminution in numbers; but I think that the proportion of severe cases is not quite so large as it was. The total number admitted into Hampstead Hospital is 1135; and at present we have 470 under treatment.

Bad as this epidemic when upon us may appear to be, let us hope that it will bear fruits of good result. Already under its pressure our sanitary reformers are on the move; and the report of the Sanitary Committee just comes in time. It is to be hoped that this epidemic of small-pox will be the last of its kind; that it will prove to be, as it were, the boundary-stone placed to mark the place where the old rule of complete local self-management was replaced by that of a proper centralisation under a competent head: and that the reign of confusion, in which boards of guardians, vestries, local boards, and other intractible bodies have to be coaxed and wheedled into doing their duty, is fast drawing to an end. We look forward with pleasurable anticipation to that time when, under the firm rule of a Minister of Public Health, sanitary measures will be judiciously and vigorously enforced, and zymotic diseases—small-pox among the number—will be driven out of our island as effectually as St. Patrick banished reptiles from Ireland.

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DANGEROUS AND FATAL RESULTS FROM THE USE OF HYDRATE OF CHLORAL.

By H. W. FULLER, M.D., F.R.C.P.,

Senior Physician to the St. George's Hospital, Etc.

As the hydrate of chloral is being largely administered as a sedative and hypnotic, and is often recklessly employed in excessive doses, as if it possessed no noxious properties, it may be well to record a few cases in which moderate doses were productive of dangerous and even fatal results.

On Feb. 9th, 1870, J. S—— was admitted under my care into St. George's Hospital, suffering from slight anasarca and bronchitis connected with chronic Bright's disease. He was restless and nervous and unable to sleep, and therefore, after he had been some days in the hospital, and was exhausted for want of sleep, I ordered the chloral draught of the hospital (containing thirty grains of chloral) to be taken at bedtime. Soon after he had taken it he jumped up in bed, clutched at his heart, and complained that the medicine produced a sense of burning. In the course of a few minutes he became violently delirious, and though after a time the delirium subsided, so much depression ensued that Dr. Jones, our resident officer, had great difficulty in sustaining his heart's action. Gradually, however, the heart recovered itself, the pulse returned at the wrist, and in a few hours he was out of danger.

Having just read M. Liebreich's assertion that hydrate of chloral, when in contact with an alkali, is transformed into chloroform and formic acid, it occurred to me that the extraordinary results witnessed in my patient's case might be attributable to an alkaline condition of the stomach, whereby the chloral was at once converted into chloroform, and thus induced the symptoms which were observed. I therefore determined to try it once again, taking care on this occasion to guard against such an occurrence by administering the chloral in combination with a full dose of acid. The result, however, was precisely the same as on the first occasion. Again there was the same sense of burning and oppression at the chest, followed first by violent excitement and delirium, and subsequently by collapse with failure of the heart's action; and on this occasion, as on the last, Dr. Jones was long doubtful whether the man would recover. I need not add that I did not make trial of a third dose, even experimentally.

From that time until the first day of the present year I did not meet with any case which led me to question the harmlessness of chloral. I had given it to hundreds of patients in doses varying from ten grains up to forty-five grains, and had been called in consulation to two patients, one of whom had harmlessly taken two drachms and a half, and the other three drachms, in the night prior to my visit. In some instances it failed as a hypnotic; in some it produced headache; and in others it gave rise to more or less excitement; but in none was it followed by any symptoms calculated to cause alarm. On the first of last January, however, I was called in consultation to see a case in which thirty grains of the hydrate of chloral proved fatal. The patient, a young lady aged twenty, who was previously in fair health, complained on Dec. 29th of constipation and other symptoms of stomach derangement, for which her medical attendant administered a pill at night followed by an aperient draught in the morning. On the 30th the bowels acted, and she was relieved; but she passed a restless night, and on the 31st complained of uneasiness in the lower part of the abdomen, which was attributed to the approaching menstrual nisus. As she was very hysterical, a neighboring practitioner was sent for early, and when he met the family medical attendant in the afternoon, they determined, as she was nervous and restless, and had obtained little or no sleep on the previous night, to give her thirty grains of chloral. See took the dose about 10 P.M. on the 31st, and almost immediately became much excited and complained of pain in the chest. In about an hour the excitement passed off, and she fell asleep and slept heavily all night. In the morning she was sleeping so heavily, and looked so pale, that the family became alarmed, and sent for the gentleman who had seen her the previous day. When he arrived she was very pale and breathing heavily—a sort of deep sighing respiration; there was no pulse at the wrist, and her extremities were rather cold. It was impossible to rouse her in the slightest degree. He gave her stimulants and applied warmth to the extremities, and gradually the pulse returned at the wrist, though at the best it was only just perceptible. The family medical attendant subsequently met him in consultation, and together they did all that appeared to be expedient; but as everything failed to rouse her, or in any way to alter her condition, they asked me to meet them in consultation at 2 P.M.

When I saw the patient she was lying on her back, with her eyes closed, and breathing heavily, the respiration having a distinctly sighing character. She was very pale, and somewhat cold; the skin was dry; the pupils were large and dilated, but acted sluggishly under the influence of a strong light; the pulse was scarcely perceptible, but the heart was beating regularly, about 120 in a minute, and though its action was very feeble, its sounds were clear and its rhythm was normal. There was no distention of the abdomen—indeed, it was flat and soft; there was no contraction or rigidity or undue flaccidity of the limbs. It was impossible to rouse her in the slightest degree; but when fluid was put into her mouth she swallowed without much difficulty, so that she took a full-sized wineglassful of brandy-and-water in the course of ten minutes.

The indications for treatment being obviously to sustain the heart's action until the effect of the chloral had passed off, we determined to give her brandy and diffusible stimulants as far as possible by the mouth, and to supplement our efforts in that direction by repeated injections up the bowel of strong beef-tea and brandy. However, everything proved unavailing. She continued in much the same condition until about nine o'clock the following morning, when she sank, without having exhibited the slightest consciousness or moved a muscle from the time she fell asleep on the evening of Dec. 31st.

Judging from what I have learned from various members of our profession, I believe that although fatal consequences may rarely follow a dose of thirty grains of the chloral hydrate, yet that unpleasant, if not dangerous, symptoms are not unfrequently experienced. Dr. Tuke informs me that in a man whom he saw suffering from the effects of intemperance thirty grains very nearly proved fatal, the symptoms of depression and failure of the heart's action being most alarming; and Mr. Fred. Webb, of Maida-vale, has given me the particulars of another case in which an elderly man very nearly lost his life from the effects of thirty grains. The faintness, pallor, and depression of the heart's action were excessive, and for some time Mr. Webb was in doubt whether he would be able to sustain the pulsations of the heart until the effects of the chloral had passed.

Doubtless these cases are quite exceptional, and are met with only in about the same proportion as cases of death from the administration of chloroform. But the facts I have cited are sufficient to prove that such cases are more frequent than is commonly supposed. Further, they inculcate the necessity for caution in the administration of the drug; and they point to the conclusion that thirty grains form too large a dose for ordinary use, and especially for a patient in whom the effects of the chloral have not been previously tried. As a hypnotic in nervous restlessness, ten or fifteen grains ordinarily prove efficacious; and I have not seen or heard of any unpleasant symptoms following these doses. But the cases above recorded prove that larger doses, though usually harmless and often marvellously efficacious, are not unattended with risk; and now that the public are beginning to dose themselves with chloral, as they have done of late years with chlorodyne, this important fact cannot be too widely known.

Manchester-square, W., March 2nd, 1871.

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ON THE USE OF THE ECRASEUR FOR THE REMOVAL OF NÆVOID GROWTHS.

By James F. West, F.R.C.S.,

Senior Surgeon to the Queen's Hospital, and Professor of Anatomy in Queen's College, Birmingham.

The advantages of the écraseur for the removal of vascular and pendulous tumours had been known to me from practical experience for some years, having frequently by means of it taken away hæmorrhoids, uterine polypi, &c., with perfect success; but I had not employed it for the treatment of nævi, having generally been able to cure them by means of the ligature, the chloride-of-zinc paste, or the injection of the perchloride of iron, until I met with a case in which, the ligature failing entirely, I was induced to try the écraseur.

M. Chassaignac reports several cases of erectile tumour which he completely relieved with this instrument. One of the most remarkable he narrates is that of a venous erectile tumour as large as an egg, situate near the umbilicus in a child six months old, which he removed "sans l'effusion d'une seule goutte de sang" ("Traité de l'Ecrasement Lineaire," p. 527).

Since my first experiment with it answered perfectly, I have again employed it on many occasions; but a few typical cases will suffice to indicate its utility in many, if not in all, cases of nævoid or erectile tumours. I am far from saying that it should replace all the other methods which have hitherto been used for the removal of these growths. Each case must be treated on its own merits. Thus there are certain cases in which the setting up of adhesive inflammation, and the consequent obliteration of the vessels, supplying them by the injection of the perchloride of iron, by vaccination, or the introduction of heated wires into them, may be advantageously employed. But this principle cannot be carried out in many nævi of the face, as a large, dense cicatrix is thereby produced, which is often very unsightly. The simple application of collodion, or of pressure by elastic pads, may cure in slight cases.

The destruction of nævi by caustics, again, is attended by uncertain results, and the consequent cicatrices are often deep and ugly, from the impossibility of our guaging the distance to which the caustics—as chloride of zinc, nitric acid, &c.—ought to penetrate the tissues.

The ablation of erectile tumours is probably the most perfectly reliable means of treatment, and this may be accomplished either by enucleation, the ligature, the knife or the écraseur.

Piecemeal excision or enucleation is often attended with great loss of blood, even where the adjacent arterial trunks have been compressed as completely as possible: and the little patients who are the ordinary subjects of nævi bear hæmorrhage badly. A comparatively trifling loss often proves so serious to the patient that the attacking of large subcutaneous nævi by this process would hardly be justifiable.

The same difficulty meets us in the use of the knife; and I cannot doubt that the older surgeons were just in laying it down as a rule that, in removing nævi, it was always proper to cut wide of the tumour, and on no account to cut into its mass.

The introduction of either hare-lip pins or of ligatures frequently fails to cure; the latter are especially unreliable with venous nævi of large size, owing to their becoming loose, even though the skin around the growths may not have been included in them. The parts daily diminish in size, so that the ligatures have to be again and again applied to ensure the entire destruction of the tumour. Moreover, ligatures often set up troublesome ulceration at the base of the nævi, from which occasionally severe hæmorrhage takes place.

The advantages which, in my experience, the écraseur offers are, that hæmorrhage is avoided—an important element in all operations, but particularly so with children, and that you have a linear cicatrix and a comparatively small wound; and thereby prevent or diminish the deformity which, by other operative procedures, will almost of necessity be produced. Chassaignac, also, claims for it that less inflammatory action and less suppuration attend its use than that of the knife; and, consequently, that the wounds resulting therefrom heal more readily, and are less likely to be followed by pyæmia. Of these latter points I will not now offer an opinion; but as to the smallness of the resulting cicatrix—a great desideratum in all operations about the face,—and as to the freedom from hæmorrhage, even when dealing with large growths of this kind, I am quite decided.

Case 1.—Mrs. L——'s child, aged seven months, has a purple subcutaneous nævus, as broad as a crown-piece, on the left side of the head, which when filled with blood, was elevated to the size of a large walnut. Pressure with elastic pad had been tried, but without success, when Dr. Suffield, the ordinary medical attendant, asked me to see the case. I ligatured the tumour in four segments on Nov. 11th, 1868; but, owing to the ligatures becoming loose, very little reduction in the size of the tumour took place. On the 18th I encircled the base of the nævus with a ligature. On the 22nd I introduced two strong pieces of whipcord through the centre of the tumour, and tied it in two segments. These also became slack; and very little benefit having been obtained, I resolved on using the écraseur. Having first passed two hare-lip pins through the base of the tumour, I applied the chain of the écraseur below them, and, gradually working the handle of the instrument every twenty seconds, succeeded in removing the whole mass, which was as large as a walnut, in the course of fifteen minutes. No bleeding of consequence occurred, the wound healed up rapidly, and a very small cicatrix, which was perfectly free from all trace of nævoid tissue, resulted.

Case 2.—Elizabeth L——, aged forty-seven, was admitted into the Queen's Hospital on April 26th, 1869, with a dark pigmentary nævus on the right cheek which had existed from birth, but had recently increased greatly in size, and which reached from the outer canthus to the angle of the jaw, and measured two inches and a half in length by one in breadth. I removed it with the écraseur the same day, first making an incision through the skin around the tumour to the depth of a quarter of an inch, in which the chain of the instrument might lie. This procedure facilitates the operation, as the écraseur, though it freely divides mucous membrane, rather tends to tear the integument, and is at any rate some time in cutting through it. Three silver sutures were introduced after the operation. These were taken out on May the 1st, and two days after, the wound being perfectly healed, she went home, having a very small linear scar on her cheek.

Case 3.—Mrs. B——, of Bromsgrove, came to me with a strawberry-like pigmentary nævus as large as a chestnut on the left cheek, just below the zygoma. Dr. Mackey, Professor of Materia Medica in Queen's College, gave chloroform, and I applied the écraseur, first making a slight incision in the skin around the tumour as in the former case. Scarcely any blood was lost by either patient. Three silver sutures were introduced, which were taken out on the fourth day, and on the seventh day after the operation she was able to return home. This growth also had existed from birth as a mole, but had lately developed greatly and become very vascular and sensitive. The cicatrix which resulted was linear, and was so slight that when she presented herself in my consulting room a few months after, I did not at first distinguish it at all.

Birmingham, February, 1871.

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REPORT OF A CASE OF INTUSSUSCEPTION.

By J. St. Clair Gray, M.B., C.M.,

Assistant to the Professor of Medical Jurisprudence,
Glasgow University.

On the 10th of December, 1870, I was requested by a medical man in town to make a post-mortem examination of the body of a child, aged five years, who had died after an illness of eight days' duration, the principal symptoms during that time being referable to the abdomen. As far as I could learn, the symptoms were briefly these:—Great tenesmus (nearly constant, but subject to well-marked exacerbations and remissions), accompanied with scanty stools of bloody mucus, though once or twice at first pure blood, which afterwards coagulated, was passed in considerable quantity; at no time during the illness was fæcal matter present. There was pain, at first referred to the symphysis pubis, extending in the middle line upwards to the umbilicus, but afterwards there was very distressing pain proceeding from the right iliac fossa upwards as high as the lower margin of the liver; no pain was ever complained of in the left iliac region. Vomiting was not present at all till the fourth day of the illness, and not till the sixth day did it always follow the exhibition of food. The vomited matters consisted invariably of the aliment of which the patient partook, with a little mucus, the whole having the odor and color of bile; no stercoraceous matters were ever observed. There was considerable tympanites, but nothing was ascertained tending to throw light on the case either by percussion or by examination of the rectum by the finger. The pulse was small, thready, and frequent, beating 150 during the whole illness. The expression of the face was anxious throughout.

During the first part of the illness turpentine was given, both by the mouth and by injection per rectum, with the view of overcoming the hæmorrhage; and a mild laxative was prescribed, with a very small addition of laudanum, to procure an evacuation of the bowels and relieve the pain; poultices of linseed-meal and mustard were also applied over the abdomen; while beef-tea, chicken-soup, milk, and whiskey-and-water were administered. After several injections of turpentine—which were retained for a considerable time, but came away very slightly altered from the condition in which they were given, without producing any natural evacuation—the blood to a certain extent ceased, any which now appeared being only mere streaks in the mucus which was passed at intervals rarely longer than one hour in duration, any attempt at movement of the bowels being accompanied by great tenesmus. Mercury-with-chalk, in three-grain doses, was then administered; and subsequently laudanum enemata were ordered, the case being then suspected to be one of ulceration of the bowel with spasm, giving rise to obstruction, probably near the ileo-cæcal valve, though some suspicion of intussusception was entertained. Embrocations of turpentine, olive oil, and laudanum were applied to the abdomen, together with warm fomentations. Besides this, tincture of assafœtida, in ten-minim doses was administered in cold whiskey-and-water every four hours, with a view to relieve as much as possible the flatulent distension of the stomach, which was so distressing to the little sufferer. During the last two days of his illness he partook only of whiskey-and-water, but this, after being retained for a short time, was always ejected in much the same condition in which it was swallowed. On the evening of the eighth day of the disease a sudden pain, felt universally over the abdomen, came on, with great tenderness on pressure; the pulse was small and barely perceptible; and there was general symptoms of collapse,—in which state he continued till the hour of his death.

From the general symptoms, the case was viewed by the two medical men who attended him as one of ulceration with spasm, causing intestinal obstruction and rupture from pressure at the ulcerated part —the only mode in which the symptoms could be satisfactorily explained.

The following is a report of the appearances found in the abdomen, to which, by request of the parents, the examination was limited:—Externally the body appeared well nourished, and there was observed a considerable deposit of adipose tissue on cutting through the abdominal walls. The belly was much distended, tympanitic, and its whole surface of a deep olive-green color. On opening the abdominal cavity no appearance of inflammation of the peritoneum was found, and there was but a small quantity of clear serum in the lower part of the cavity. There were no adhesions and no appearance of hernia, strangulation, intussusception, or ulceration, in the small intestines, which contained in their lower portions a small quantity of fæcal matters, and were much distended with gas. The omentum and mesentery contained a considerable quantity of fat; the liver was healthy; the gall-bladder empty; the stomach small but healthy and nearly empty. Attention was now directed to the large intestine, in which a large resistant body was found, occupying the descending colon, and passing through the sigmoid flexure into the upper part of the rectum; the cæcum was found rather higher in the abdomen than usual. A double ligature was applied to the ileum about two inches from its connexion with the cæcum and the intestine, the gut being divided between the two points of constriction. A similar procedure was adopted in severing the upper portion of the rectum. The colon, having been removed, was opened in its whole length, and the resistant body above noted was found to consist of an invaginated piece of intestine seven and a half inches long, there being within this a second invagination measuring nearly two inches. There was around the internal portion of the volvulus a considerable quantity of bloody mucus, but no fæcal matter, and this being removed, the invaginated intestine was found to be of a reddish or brownish grey color, apparently passing into gangrene. There was no appearance of true ulceration, though there were several points at which there was marked congestion. The rest of the colon, including the cæcum and vermiform appendix, was perfectly healthy, as also were the kidneys, spleen, and bladder.

In this case the following peculiarities may be noticed, and may perhaps guide to a correct diagnosis in future cases:—The long duration of the symptoms; the gradual accession of vomiting; the absence from the vomited matters of any stercoraceous character; the absence of pain from the left side, where alone the lesion existed, and its presence on the right, without any apparent pathological change to account for it.

Newtown-terrace, Glasgow, December, 1870.

CASES OF SUCCESSFUL VERSION, WITH LIVING CHILDREN, AFTER FAILURE OF THE FORCEPS.

By J. J. Phillips, M.D. Lond.,

Assistant Obstetric Physician to Guy's Hospital, Assistant-Physician to the Children's Hospital, and Physician to the Royal Maternity Charity.

The following cases, which have occurred to me during the past year, are recorded as affording additional evidence of the superiority of version over the forceps in certain cases of coarctation of the pelvic brim.

Case 1.—On April 25th, 1870, I saw, at Islington, a patient in labour with her seventh child. Her first pregnancy terminated prematurely at the seventh month, but the infant did not long survive its birth. This was the only child born alive. To this succeeded other premature deliveries; but it was believed that the fifth child and the sixth were born at term. In her last labour she was seen by a distinguished physician, who, failing to complete delivery by the forceps, performed version, and delivered her of a still-born male child.

The patient was short in statue, but there did not exist any apparent deformity of the spine or of the lower limbs. When I saw her, on the present occasion, she had been about fifteen hours in labour, and the os uteri had been fully dilated for some hours, but the child's head had not entered the pelvis. The pulse was of good power, and there were strong rhythmical uterine pains. The sacral promontory was easily reached by the finger. It was determined to administer chloroform. I then explored the pelvis, and found that the antero-posterior diameter at the brim, as accurately as I could measure it, was very little over three inches. I applied the long double-curved forceps, though I hardly expected to succeed with them; but no justifiable amount of traction produced any effect in bring the head through the brim. I then seized a foot: the child rotated easily, and, as the soft parts were dilatable, the lower half of the body was soon born. The shoulders were hooked down by carrying the trunk first well forward and then backward. I anticipated considerable difficulty in extracting the head, but steady traction with one hand on the back of the neck and the other on the legs soon brought the head into the cavity with a slight jerk. The child—a good-sized female one—was born asphyxiated, but was resuscitated by artificial respiration, though it was about twenty minutes before she breathed vigorously. I heard subsequently that the mother and the child progressed favorably.

Case 2.—On the evening of the 3rd of July I was called to a patient of the Royal Maternity Charity, aged forty-one, who was in labour with her sixteenth child. Of the fifteen children seven only had been born alive. She had been delivered of the last five "by instruments," and of these four were dead. The patient had neglected repeated warnings to have premature labour induced. The midwife said that she had been delivered once by my predecessor in the Charity, Dr. Barnes, and that he advised labour to be brought on, in any subsequent pregnancy, about the seventh or eighth month. I found a fat woman, complaining loudly, and urgently requesting instrumental assistance. The liquor amnii had escaped eight hours previously, and since then there had been strong labour pains. The abdomen was very pendulous, the uterus lying forward, and the child's head had very slightly entered the brim. The pulse beat 130 per minute. I endeavored to restore the uterus to its proper axis by means of a broad binder, and subsequently applied the long double-curved forceps, which locked easily. I felt confident at first that the forceps would succeed; but after using as much compressive power and firm traction for a considerable time as I deemed compatible with the life of the child, I desisted. Dr. Richards then kindly placed the patient under the influence of chloroform, and, introducing my hand, I carefully examined the brim of the pelvis. The conjugate diameter was estimated at about three inches and a half, but the fœtal head was very large and firm. I turned the child without difficulty. The head engaged in the pelvis in the left oblique diameter; its liberation was effected after meeting with much resistance. The child, a large male, though at first apparently dead, soon recovered. The mother suffered from chronic bronchitis and emphysema, and her convalescence was rather slow, as indeed it had been after previous labours.

Case 3.—Early in the morning of the 18th of February, I was summoned to a case of difficult labour, in which repeated attempts had been made to deliver by means of the long forceps. The history which I obtained was that the patient was the mother of three or four children; that each successive labour had been increasingly difficult; and that the last had terminated, with the aid of the forceps, in the birth of a dead child. The os uteri was dilated to the size of half-a-crown on the preceding morning; and at seven in the evening it was fully dilated, and the pains were frequent and very strong. Six hours later, as the fœtal head was pressed into the pelvic brim, but would not pass through it, the forceps were applied; but the attempts to bring the head into the cavity were unavailing. I turned the child slowly but easily, the patient being fully under the influence of chloroform. The head became again fixed at the brim for four or five minutes, but was then liberated by firm traction. Contrary to expectation, the child, after a little attention had been paid it, began to breathe, and subsequently to cry lustily. I have no note of the estimated dimensions of the pelvis in this case; but the obstruction was due to a jutting sacral promontory, which had produced a marked depression on the left parietal and frontal bones of the fœtal head.

Finsbury-square, February, 1871.

ON THE RADICAL CURE OF HERNIA.

By A. Vans Best, M.D., F.R.C.S.,

Late Surgeon, Bengal Army.

Up to the present time, so far as I am aware, seven operations have been suggested for the radical cure of reducible inguinal hernia, all having the same object—the obliteration by plastic material of the aperture of exit.

The very simple operation (even more simple than that of Mr. Redfern Davies) I now recommend requires neither the invagination of the parts nor the use of plugs or buttons, whether of india-rubber or split shot. The steps of the operations are these:—

I use a rather long-handled flat nævus or hæmorrhoid needle, well bent (quite a semicircle from shoulder to tip of 1¼ in. diameter), not too wide, and sharpened on both sides from one third of an inch from the point. A fine hole is drilled for the passage of the ligature, a quarter of an inch from the point. This needle, with a plain dissecting forceps and strong salmon gut, is all that is required for the operation.

In the first place, chloroform must be fully administered, the hernia reduced, and the thigh adducted and flexed. The finger, as usual, is introduced *quite within the internal ring*, carrying the integument in front of it up the canal, while the assistant draws the skin of the abdomen firmly over towards the opposite groin. The threaded needle is then passed close to the finger, a small piece of wax having been moulded on its point (instead of a canula); the handle of the needle is raised and the point pushed through the internal pillar and the abdominal parietes close within the internal ring. The portion of gut on the convex side of the needle is seized by the forceps of the assistant, and the needle, still threaded, withdrawn through all the structures except the temporarily invaginated skin. The finger being carefully maintained *in situ*, the gut on the concave surface of the needle is slightly pulled by the assistant, while that already seized is firmly held; this facilitates the turning of the needle and transfixion of the outer pillar (Poupart's ligament). This being accomplished, the skin of the abdomen is drawn towards the crest of the ilium, and the needle passed through the original aperture, unthreaded, and the finger and it withdrawn. We have, therefore, one scrotal and one abdominal aperture—the latter directly above the aperture of exit of the hernia. Nothing now remains but to tie firmly home the two ends of the salmon-gut, cut it short, and let it drop into the wound. A pad and spica bandage are applied, a dose of opium is given, and the patient kept in bed until the parts are well matted together. The knot of salmon-gut will either become encysted or come away, it matters little which; in either case the approximation of the pillars is certain. It is satisfactory to the operator that the assistant should pass his finger up to the internal ring, when he can distinctly feel it grasped as the ligature is tightened. It is absolutely necessary that the salmon-gut should be soaked in warm water for five minutes before being used, and that long round threads should be selected. The needle should be threaded from the concave side.

I have at present performed this operation only three times—twice with complete success. The unsuccessful case occurred in the European General Hospital in Calcutta, where the patient, a sailor, leaped over several beds within a week after the operation, and reproduced the hernia.

I would suggest that this operation should be employed when a very large ring exists, so that its space might be diminished, and that the protrusion might thus be brought under command of an ordinary truss.

In the three cases on which I have operated I have had no hæmorrhage. One was to all appearance a direct, the others examples of external, inguinal hernia. I give a short summary of my last case.

In consultation with Dr. Firrie, we agreed that the following was a suitable case for the operation.

R. M——, aged twenty-three, of a nervous and restless temperament, had suffered from reducible right oblique inguinal hernia, of the size of a hen's egg, for three years, accompanied by a small hydrocele. He was exceedingly anxious to have the hernia permanently cured. As he did not pay much attention to the adaptation of his truss, the hernia was gradually increasing in size. At his request I operated (and chose the manner described above) on the 3rd of November, at 3 P.M. He had a grain of opium at once, which was repeated by my orders at 9 P.M., and a little cold beef-tea when desired.

Nov. 4th.—Good night; slight tenderness over the wound.—9 P.M.: Passed water; general uneasiness, and some slight tenderness in right iliac region.

5th.—Took half an ounce of castor oil; pain towards right iliac region; testicle retracted. Oil operated slightly.

6th.—Wound dressed; purulent discharge, redness and tenderness entirely local. 7 P.M.: Had an attack of colic, which was relieved by camphor and assafœtida pill.

Dec. 17th.—Not the least impulse on coughing; parts solid. Cured.

Aberdeen, February 17th, 1871.

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A CASE OF

TETANUS SUCCESSFULLY TREATED BY THE HYDRATE OF CHLORAL.

By A. G. Lawrence, M.D.

Mrs. A—— had been under my care for the past two years, suffering from myelitis, and had derived considerable benefit from rest, support, counter-irritation, and tonics, with the iodide of potassium, leaving her with partial disuse of the lower extremities. On Dec. 28th, the day being bright and sunny, she went for a drive, and expressed herself as better than she had been for a couple of years. While undressing the same evening, her maid allowed her to fall into the sitting position which produced acute pain up the spine into the back of the head. She passed a very wakeful night, complaining of stiffness in the jaws, which continued all through the next day, and for which I prescribed two blisters, of the size of a shilling, to be placed over the articulation of the lower jaw; also a mixture of the iodide of potassium and aromatic spirit of ammonia in an infusion of gentian, three times daily; hoping that entire rest in bed, with quietude, would overcome the outward symptoms. However, early on the morning of the 30th I was summoned to my patient, and was told she had passed a very restless night, and had not slept till 6 A.M., and awoke at 6.30 with her jaws firmly fixed and unable to open her mouth in the slightest degree. She complained of great stiffness and pain in the neck and jaws, accompanied with sharp spasm. The muscles of the back and legs were also rigid, the spasms never entirely ceasing, but being aggravated every quarter of an hour, and then partially subsiding. There was no hardness or rigidity of the muscles of the abdomen. Her voice was husky; she had the greatest difficulty in swallowing, and the saliva trickled down her chin. She had a careworn expression and anxious, painful smile. The sensibility of the skin was so much diminished that she did not feel the effect of the blisters which had been placed on the jaws the night before, and which had risen considerably. I immediately ordered three drachms of Ferris & Co.'s syrup of chloral hydrate in half an ounce of water every three hours, and, should the spasms relax, as much beef-tea and milk to be given as she could take. Half an hour after the first draught a feeling of glow had come all over the body, and, from being exceedingly cold, she became quite warm; the tonic spasm of jaw and legs began to subside, and she was able to open her mouth sufficiently to admit the handle of a teaspoon, and could with difficulty swallow a little beef-tea, though the act immediately excited spasm. After the second dose the pain and spasm in the legs and jaw were much lessened, and she was able to open her mouth sufficiently to admit the end of a pencil case; but no sleep was produced, although a calming influence had set in. After the third dose the spasm and pain subsided, so as to allow the mouth to be opened wide enough to admit a teaspoon, and beef-tea and egg-flip were constantly given.

Dec. 31st.—I found my patient had slept all night; the spasm and pain in jaws and legs had entirely gone; she was able to swallow well without producing spasm, and only complained of great soreness of the muscles of mastication and of the lower extremities; she was, however, quite unable to use the former. Has had one dose of chloral this morning, which is to be repeated at bedtime.

My patient continued to improve till Jan. 3rd, four days after, when, in having her bed made, the maid wrenched her back, which in one hour brought on all the former symptoms in an acute form. The chloral was again administered every three hours, and after the second dose the tonic tetanic symptoms once more entirely subsided.

The point of greatest interest in this case, next to the favorable influence of the chloral, is the production by shock directly affecting the spinal chord of the train of tetanic symptoms which are commonly due to traumatic peripheral irritation. This, no doubt, is to be accounted for by the antecedent myelitis. My patient has continued to improve under a tonic treatment, with chloral only at bedtime, which she describes as producing a most pleasant feeling, and in half an hour after taking it a warmth comes, first in the hands and arms, then in the feet, and in three-quarters of an hour it produces an uninterrupted sleep of two hours. She then awakes to change her position, and falls asleep again, arousing in the morning very much refreshed, free from headache, sickness, or other uncomfortable feeling, and says that she would like to live constantly under its influence. I have tried in her case every anodyne in the Pharmacopœia, all of which deranged the system so much that I abandoned their use; but the chloral has admirably answered my purpose in procuring for my patient a good nights rest without any drawbacks.

Chepstow, Jan. 1871.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

LONDON HOSPITAL.

NOTES FROM THE OUT-PATIENT PRACTICE OF DR. HUGHLINGS JACKSON.

Subjective Sensations of Smell, with Epileptiform Seizures.—At a visit (Feb. 2nd) to one of the two medical out-patient rooms, Dr. Hughlings Jackson drew our attention to several cases of disease of the nervous system. One of them was that of a patient, sixty years of age, who had epileptiform seizures in association with subjective sensations of smell—a case mentioned in our Mirror, in 1866; to which report we may refer for remarks on this subject. This patient can smell nothing; and yet has now and then a "stench in his nose," usually as his fit passes off. He has had convulsions, in which he has bitten his tongue; but more recently there have been losses of consciousness, without movement of the limbs—what he calls attacks of forgetfulness. In these he is unconscious, becomes pale, and usually remains still. In one attack, however, he went from Polar to Deptford—eight miles. The facts are that he lost himself at Poplar, and found himself again at a public-house at Deptford, where, *fourteen years ago*, he used to live. He walked, he supposes, round by London-bridge; because if he had crossed the river lower down he must have paid for his passage by boat. Some time since he walked into a canal during a seizure. Dr. Hughlings Jackson's speculation is that, in such cases as these, there is disease of the brain in the region of the anterior cerebral artery. Bromide of potassium does the man a little good; but it has not had much influence on his seizures.

Such cases of quasi-somnambulism have a medicolegal interest. (See Bazire's Translation of Trousseau, vol. i.; and "Masked Epilepsy," by Dr. Thorne Thorne, St. Bartholomew's Hospital Reports, vol. vi.)

Epileptiform Amaurosis.—There are cases in which a patient suddenly loses his sight. He may go into absolute darkness for a few moments; but more frequently there is only great temporary diminution of sight. This symptom Dr. Hughlings Jackson used to call "epilepsy of the retina," but he now prefers the name "epileptiform amaurosis," since he cannot be sure that the retina is the part at fault, and, indeed, he believes it is not, at all events, the part *primarily* diseased. In some cases it is hard to determine whether the temporary defect be owing to temporary loss of sight, or to failure of accommodation or to confusion of images, the result of irregular action of the ocular muscles. When temporary loss of sight is the sole nervous symptom, it is, Dr. Hughlings Jackson believes, impossible to fix the seat of the lesion causing the symptom, just as it is in cases where double optic neuritis is the sole nervous symptom. Neither of these symptoms is, so far as we have yet learned, "localising." Temporary defect of sight may be the sole nervous symptom in a case, or it may precede a convulsion, and not unfrequently it is contemporaneous with a one-sided spasm of the face or hand. Temporary loss of sight is not the analogue of the subjective sensations of smell just spoken of, but of temporary *loss* of smell, a condition of which Dr. Hughlings Jackson has never heard a patient complain. The analogue of the subjective sensations of smell are the temporary sensations of color, "balls of fire," &c., which sometimes precede convulsion, or are contemporaneous with the onset of some convulsions, most frequently those beginning by spasm of the hand or face. It is to be observed that such subjective sensations of sight occasionally precede optic neuritis: the development of optic neuritis is to be feared if the patient suffer intense pain in the head. When subjective sensations of sight occur along with spasm starting in the hand or side of the face, Dr. Hughlings Jackson believes the latter symptom shows the disease to be seated in the cerebral hemisphere opposite the side of the body in which the spasm starts. Here it may be remarked that patients very rarely complain of seizures beginning by subjective sensations of hearing. An analogous fact is that deafness (of both ears) is rarely seen with convulsive seizures (epileptiform seizures are occasionally associated with *organic* disease of the ear), whilst amaurosis (from double optic neuritis) is not unfrequently seen in that association.

*Epileptic Aphasia.**—In certain limited convulsions the patient loses his speech without losing consciousness. This is not to be confounded with *petit mal.* Temporary loss of speech most often occurs in those cases of unilateral convulsions in which the spasm starts in the *right* cheek. Temporary loss or great defect of speech is observed sometimes when the spasm is quite limited to the right side of the face. The patient may consult us because he occasionally suddenly loses his speech for a few minutes. For instance, he goes to a shop, and on trying to give an order finds that he cannot talk, or that he talks so badly that he is supposed to be drunk. In a case Dr. Hughlings Jackson had seen from the practice of Dr. Hearnden, of Sutton, there was on one occasion loss of speech for several hours, and then a convulsion, with loss of consciousness; on two subsequent occasions there was loss of speech for half an hour. In each of these seizures there was spasm of the right side of the face, and there is weakness of the right arm and leg—imperfect hemiplegia. It is important to note the manner of talking *after* attacks of convulsion beginning in the right side: but this is no easy matter. The defect is often so slight that it seems to melt into nothing when it is described. We hope, however, shortly to give details of a very remarkable case of epileptic aphasia observed in this hospital by Mr. Stephen Mackenzie; the patient blundered strangely in replying to questions. In this instance the exact mode of onset of the convulsion was not known; the spasm, however, had been on the right side. It is greatly to be desired that the patient should be set to write during the continuance of the temporary loss or defect of speech. On this point there are few facts. It is worth mentioning that some patients will say that they can write during their temporary condition of speechlessness, when on investigation it turns out that they merely assume that they can, and that they have never really tried to write. We must remember, also, that a patient who is permanently speechless may write his name when he can write nothing more, and that he may be able to copy writing or print. Lastly, it is to be observed that temporary loss of speech for several hours or days occurs in cases of valvular disease of the heart—presumably from embolism. No doubt also it occurs from small clots and from thrombosis. Dr. Hughlings Jackson believes that epileptiform seizures occur from local instability induced by plugging of vessels (embolism or thrombosis).

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* "There is a peculiar class of cases of epileptic hemiplegia, in which the exciting cause of the epileptic fit at the same time damages or greatly injures voluntary power and speech."—TODD: "Nervous Diseases," Lect. xv.

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CHARING-CROSS HOSPITAL.

A CASE OF PRIMARY CANCER OF THE LIVER.

(Under the care of Dr. Headland.)

For the following notes we are indebted to Mr. Ralfe, registrar.

Carcinoma of the liver, being ususally preceded by cancer of other organs, is rarely met with as a primary affection. As a secondary deposit its occurrence is far more frequent; and Rokitansky has estimated that it is found once in the liver for every five instances of its presence in other parts of the body. The difficulties of diagnosis in the present case were increased by the absence of icterus, ascites, or œdema, and by the want of any distinct evidence of indurated protuberances in any part of the organ. In summing up the features of the case, Dr. Headland remarked that the enlargement could scarcely be attributed to cirrhosis, since there was no history of alcoholic intoxication, nor to albuminoid disease, as there was no evidence of caries, long-continued suppuration, or of either of the other usual coexistent conditions; abscess of the liver and hydatid cyst were excluded from consideration by the absence of pyrexia and of any circumscribed tumour; and, taking into consideration the rapidity of its growth and the presence of pain, he concluded that the enlargement must be due either to cancer of the stomach and secondary deposit in the liver, or, in spite of its rarity, to primary cancerous infiltration of the latter.

W. S——, aged forty, was admitted into the hospital on the 12th of January, suffering from enlargement of the liver. He stated that for the last three months he had been gradually losing flesh and suffering from obscure pains in the right side. He always previously considered himself a strong, healthy man, and had never lost a day's work through sickness. Six weeks before admission he had been seized with sharp cutting pains, which made him feel sick, and compelled him to leave his work and go home. Since then he had been laid up. He had always been a temperate man, and had never had syphilis. There was no history of cancer in his family. He complained of constant pain, aggravated by every movement, and by the slightest touch. There were complete anorexia, and occasional vomiting; once or twice blood had been observed. The bowels were constipated and the motions clay-colored. The urine had a specific gravity of 1027, and yielded a violet-colored abnormal deposit on cooling. The area of liver dulness could be traced downwards to a line drawn from the umbilicus to the crista ilii on the right side, and to a line drawn from the umbilicus into the left hypochondrium to the region of splenic dulness. The percussion of the upper border gave the following limits:—In the mammary line, dulness just above the upper margin of the fifth rib; in the axillary line, to the sixth rib; and in the dorsal line, to the upper border of the seventh rib. Palpation of the edge of the liver afforded no definite information, though there were a suspicious hardness and tenderness in the epigastric region; otherwise the liver felt uniform and smooth. Bronchial breathing was heard over the base of the right lung. The case remained under observation till the 3rd of February, when the patient died. A few days before his death he became paraplegic.

On examination after death, the body did not present any distinct cachexia, nor was there œdema or ascites. On opening the abdomen, the liver at once came into view, reaching downwards below the umbilicus, and studded with large white excavated patches of the size of a crown-piece; these, towards the margin, were less distinct, and the liver-tissue was more equally infiltrated and less nodular. On section, the liver was studded throughout with circumscribed tumours of medullary cancer, some of which were undergoing softening. The weight of the liver was 9 lb. 5 oz. The base of the left lung was consolidated. The bladder was distended with urine; its mucous membrane much pigmented and eroded, owing, no doubt, to the alkaline urine secreted since paraplegia had come on. Careful search was made in the stomach, intestines, and lungs for other deposits, but these organs were, without exception, quite healthy.

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WEST LONDON HOSPITAL.

CASE UNDER THE CARE OF MR. FAIRLIE CLARKE.

Hernial Protrusion through the Abdominal Walls.—Elizabeth D——, aged forty-eight, a married woman, was admitted with a large and painful swelling in the left iliac region. She stated that a year and a half ago she was seized with severe pain in the left groin, which extended over the whole of the left side of the abdomen, and was accompanied with rigors, nausea, and vomiting. Linseed poultices were applied, and in the course of a fortnight an abscess pointed above Poupart's ligament. When it burst, it gave exit to a large quantity of thick yellow matter, and it continued to discharge more or less for nearly a year. It did not appear that there was any history of inguinal or femoral rupture, or that the abscess had any deep origin.

On admission, the patient complained of severe pain in the left iliac region and the loins. On being examined in a standing posture, a swelling, of about half the size of a cocoa-nut, was seen in the left iliac region. To the touch it was tense and elastic, and a distinct impulse could be felt in it when she coughed. When the patient lay down, the swelling subsided, and the aperture through which it protruded could be clearly made out to the left of, and a little below, the umbilicus. It was an irregular space, with sharply-defined edges, of about the size of the palm of the hand, and in this area were two or three scars of abscesses. It appeared that to the extent of this space the abdominal muscles had completely disappeared; they had, as it were, suppurated away, and there remained nothing more than the skin and the subjacent fascia. Through this aperture there had occurred a hernia, which had given rise to the painful symptoms of which the patient complained.

A few days after admission, she was seized with pain and tenderness in the situation of the swelling, and, after the application of poultices, one of the old scars opened and discharged some thin pus. The patient was kept in bed, and the sinus was dressed with stimulating lotions.

In about three weeks time a large pad was secured with a bandage to the weak part of the abdominal wall, and the patient was allowed to get up. In a few days more she was discharged, with an order for a suitable truss.

FOREIGN HOSPITAL REPORTS.

GENERAL HOSPITAL, VIENNA.

PROFESSOR HEBRA'S CLINIQUE.

Case of the so-called Peliosis Rheumatica.—A girl of fourteen was sent to the hospital on account of an eruption on her legs and thighs, which now are mottled over in front with a number of small, irregular, bluish, and slightly raised patches, between which the skin is normal. Fifteen days ago she had pain and slight swelling in her knees and ankles, and was obliged to lie up, but was not seriously ill. She has now only a slight pain in her left hip-joint. The eruption on her legs was discovered accidentally by her mistress. The spots have never "burnt" nor itched. Her nose has not bled, nor have her gums been sore.

Professor Hebra observed: We have here to do with a form of purpura which neither has (*a*) a scorbutic origin, nor (*b*) arises from weakness and delicacy of the walls of the bloodvessels; but (*c*) whose cause, equally with the cause of the rheumatism with which it is associated, is at present an enigma. It may possibly depend on a momentary blood stasis in the venous circulation. The patients only have their attention called to the eruption by the pain which their joints give them at the time. The spots, which are at first rose-red, run through the course of ordinary ecchymoses, with their well-known changes of color. In small-pox, scarlet fever and measles, purpuric patches sometimes make their appearance on the skin (purpura exanthematica), accompanied by high fever, a pulse of 110 to 160, great prostration, and delirium; but in small-pox these hæmorrhages *precede* the characteristic eruption, so that a patient may be covered by them without yet having any eruption, while in scarlet fever and measles they *follow* it. A case of purpura, with preceding rigor, high fever, and delirium, is a case of small-pox. Unfortunately we are unable to watch these ecchymoses to their end, as such cases of small-pox are fatal. There is an extreme variation in the ratio of such hæmorrhagic cases to the non-hæmorrhagic; sometimes 1 in 125, sometimes 10 per cent., sometimes 100 per cent. may be hæmorrhagic.

Purpura is sometimes associated with Bright's disease. A case of Professor Hebra's, for example, which was under his care for a purpuric eruption on the skin, was attacked with pleuro-pneumonia while in the hospital, and was, therefore, handed over to Professor Oppolzer. Not long afterwards a "splendid" nephritis developed itself. Hypertrophy and dilatation of the right heart in men are sometimes accompanied by purpura.

Purpuric relapses are very liable to occur. These are sometimes attended with colic of the intestines and with diarrhœa, but no hæmorrhage takes place from the bowel.

The prognosis of purpura in old women is bad, but favorable in young women and in men.

As to treatment, the vertical position does as much harm as the horizontal does good. Cold douches, recommended by Schönlein, are injurious, because the patient has to sit up for their employment.

The patient was ordered to rub her limbs gently twice a day with vinegar and water.

Treatment of Acne Faciei.—Prof. Hebra is now using emplastrum hydrargyri in cases where the patients have business to attend to in the daytime. The plaster is applied to the affected skin at bedtime, and allowed to remain on all night. The next morning, on rising, it is removed, and the face is powdered with a mixture of equal parts of subnitrate of bismuth and Venetian talc. In the evening the plaster is reapplied.

Eczema of the Hands.—Prof. Hebra treats those cases which are due solely to local irritation—e.g., in bakers, from flour—by covering the hands with gloves made of mackintosh cloth, and tied round the wrist with a handkerchief or bandage. The patient only takes them off (by pulling them *at the wrist*, so as to turn them inside out) at meal times, when he is directed to wash his hands and the insides of the gloves with cold water. By this plan the skin is effectually protected from injurious influences, while at the same time it is kept in a sort of bath by the perspiration retained by the impervious glove.

Carbolic Acid in Lepra.—Prof. Hebra says he finds that the only use of the so-called carbolic oil in lepra is to make the patients, as he expresses it, "stink." They do as well if rubbed with cod-liver oil or any fat.

Ulcer of the Tongue.—In the case of a woman of thirty, who consulted him for a single ulcer on the side of her tongue, Prof. Hebra said that multiple ulcers speak for syphilis, and single ones against it, and for epithelioma. The only test is to give iodide of potassium for a month, using caustic applications to the ulcer at the same time, if thought fit. He ordered ten grains of the iodide twice a day. The patient had no syphilitic history, and no enlarged lymphatic glands.

CHILDREN'S HOSPITAL, VIENNA.

PROFESSOR WIDERHOFER'S CLINIQUE.

Differential Diagnosis of Slight Cases of Rickets and of Chronic Hydrocephalus.—Dr. Widerhofer remarked that while the diagnosis of even moderately well-marked examples of these two diseases is generally unattended with difficulty, there are often instances in which, even with the help of the following indications, it is nearly impossible, without keeping the patient under observation for some time, to say which we have to do with. The points to be attended to are briefly these. In rickets the form of the head is more or less angular, but there is no special disproportion between the head and the face. The anterior fontanelle may be large, but the sagittal suture is generally closed at eight or nine months in such cases as we are considering. The orbits are normal, and there is no prominence of the cornea. Further, some alterations in other parts of the skeleton—e.g., beading of the anterior ends of the ribs, some degree of pigeon-breast, or some enlargement of the epiphyses of the radius and ulna at the wrist-joint will probably be present. In chronic hydrocephalus, on the other hand, the skull is inclined to a globular shape; the sagittal suture is open, as well as the fontenelle; the head is large, out of proportion to the face, and there is a divergence outward of the temporal bones at their upper part, instead of their usual vertical position. From the pressure of the intracranial effusion the upper wall of the orbit tends to become more and more upright, so as to push forward the eyes, and expose the cornea. The eyes may thus acquire a staring aspect. Further, in rickets, the tendency is to partial convulsions, especially spasm of the glottis; in hydrocephalus, to *general* convulsions. Lastly, the former is most frequently accompanied by diarrhœa; the latter by constipation.

Cases of Tetanus Neonatorum treated with Chloral Hydrate; Recovery.—Dr. Widerhofer showed lately to his class a child of three months old, which was attacked by tetanus neonatorum at the end of the first week after birth, and was treated with chloral hydrate in doses of one and two grains at the time of each onset of convulsions. It was in danger for a fortnight. During the intermission of the spasms it was fed from the breast by its mother. It is now a fine, healthy-looking child. This is the sixth case (out of ten or twelve) that Dr. Widerhofer has had of recovery under treatment by chloral. Under all other methods all his previous cases died. Considering that Vogel, and other great German authorities on children's diseases, had quite recently never seen a case of this affection recover, such a success must be taken to indicate a real advance in therapeutics. Dr. Widerhofer gives from two to four-grain doses of chloral by the rectum, if the infant cannot take it by the mouth.

Provincial Hospital Reports.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.

HYSTERICAL CLOSURE OF RIGHT EYELIDS CURED BY GALVANISM.

(*Communicated by* Mr. Frank H. Hodges, House-Surgeon.)

A Female servant, aged sixteen, was brought here from a country town on the 17th February, by her mistress, suffering from inability to raise the right upper eyelid. On inquiry, it was found to have existed upwards of six weeks, and to have resisted a variety of both external and internal remedies; the former consisting of large blisters across the brows, which were still unhealed, and, according to the patient's account, of galvanism to the temples. The mistress had been alarmed by the surgeon in attendance giving it as his opinion that the affection was due to disease of the brain. The appearance and age of the patient, together with the absence of any other implication of the third nerve, suggested hysteria as the cause; and this diagnosis was borne out by the fact that on raising the affected lid with the finger whilst the patient's attention was attracted by an examination of the sound eye, and then removing the support, the eyelids remained open until the patient, suddenly recollecting herself, again closed them.

My friend Mr. Maberly, a student of the Queen's Hospital, who saw the case with me, and who had about a month previously witnessed the immediate cure of hysterical aphonia by the sudden galvanic shock applied directly to the vocal cords by Dr. Morell Mackenzie's apparatus, suggested that similar treatment would be applicable in this case, which was carried out as follows. The patient having been previously told that an immediate cure would result from the operation, one conducting wire of the galvanic battery was applied to the outer canthus, and, the instrument having been wound up to its full strength, the other wire was brought down upon the inner canthus. The effect was startling, the patient screaming and clutching at her eye; and when the hand was removed the eyelids were found to have regained completely their natural action. To ensure a lasting impression upon the patient's mind, the operation was repeated, and she went away, having returned many thanks for regaining the power she had lost for so many weeks. Nothing has since been heard of the girl, and, as her mistress promised to bring her at once to the hospital should the symptoms recur, it is concluded that she continues well.

Treatment of Tonsillitis by Belladonna.—A correspondent writes, in reference to the treatment of "Acute Tonsillitis" by Dr. Handfield Jones at St. Mary's Hospital by belladonna, that he has been in the habit of treating this disease by the administration of two-drop doses of the tincture of Belladonna every two hours, with the effect of causing a subsidence of the inflammatory phenomena in from twelve to twenty-four hours.

Hydrate of Chloral in Sea-sickness.—Dr. Döring says, in the *Wien. Med. Woch.*, that he has found this salt useful to prevent sea-sickness. It does not possess any specific properties, but throws into a peaceful sleep, without the after effects of opium or chloroform. He gave from forty-five to sixty grains per dose.

Medical Societies.

MAY—JUNE.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Geo. Johnson, M.D., Vice-President, in the Chair.

ON NEURITIS OF THE BRACHIAL PLEXUS.

BY JULIUS ALTHAUS, M.D.

In this paper the author has given a detailed description of a case of peripheral paralysis and anæsthesia affecting the whole of the right upper extremity, not a single motor or sentient nerve-fibre of the same having been spared. After excluding cerebral, spinal, and sympathetic paralysis, the influence of lead, of hysteria, and other causes, the author traces the affection to a rheumatic inflammation of the brachial plexus before its entrance into the axilla. The case was at first treated with various medicines and faradisation; but without any beneficial influence. The patient, however, recovered completely by a judicious use of the continuous galvanic current. Dr. Althaus then analyses the mode of therapeutic action of the continuous current in this case, tracing it partly to its power in causing the paralysed muscles, which did not respond to faradisation, to contract, and thereby preventing their atrophy; and partly to a catalytic influence in effecting a proper dilatation of the bloodvessels of the affected parts, so as to enable these to take up, and remove into the general circulation, pathological effusions which compressed the nervous matter, and thereby impeded the conveyance of the nervous influence to the distal parts of the nervous territory.

Mr. Brudenell Carter inquired whether the continuous current had been so applied in the case described as to include the brachial plexus in its circuit, and also whether Dr. Althaus had seen a curative effect from this current in other cases of neuritis. Neuritis of the optic nerve was so common a cause of blindness that any addition to the present means of encountering it would be a great boon to ophthalmic surgeons. It was manifestly impossible, however, to include the optic nerve within the circuit; and hence the bearing of his question whether or not that had been done in the present instance. He asked, also, whether the irritability of the muscles to the induced current was restored.

Dr. Powell thought it probable that the curative influence had in reality been that of the prior treatment, and that after the removal of some effusion, the muscles were left paralysed by disuse, and required some strong stimulant to set them in action.

Dr. Buzzard thought the case possibly hysterical; and related the particulars of one of a somewhat similar kind, in which the patient had been cured by the application of a powerful faradic current.

Dr. W. Ogle inquired whether there were any cases on record in which paralysis of a superior extremity had been produced by disease of the cervical sympathetic.

Mr. Thomas Smith withheld his consent from the diagnosis. There was no history of tenderness, which he thought would certainly have been present if there had been neuritis.

Mr. Savory could not accept the author's explanation. He asked whether effusion takes place in nerves, and of what? If it took place would it produce paralysis? He thought probably not, when the absence of paralysis in cases where nerves were pressed upon by tumours was considered. He asked also what the electric current would do in such a case; how it would dilate bloodvessels, and why dilated bloodvessels should take up effusion?

Dr. Althaus replied that the current was applied by placing the positive pole over the brachial plexus above the clavicle, and the negative pole over all the paralysed muscles in succession. The irritability of the muscles to the induced current was restored, at first very slowly, but afterwards with a rush. Dr. Powell's view was untenable, because muscles paralysed by disease never lost their irritability to the induced current. Dr. Ogle would find several cases of paralysis of an arm from disease of the cervical sympathetic in Meyer's Treatise on Electric Therapeutics. Such cases as those mentioned by Dr. Buzzard were very rare; and his own patient had been subjected to careful faradisation for a month. Mr. Thomas Smith's objection was met by saying that the paralysis had already existed for four months when the patient came under observation; and there was a history of tenderness during the first ten days. Mr. Savory must have seen many cases in which the growth of tumours had produced paralysis, when they pressed upon nerves so situated as to be unable to elude the pressure. Many such cases were recorded by Benedikt and others. He could not explain how the galvanic current produced dilatation of bloodvessels; but he knew the fact, and the dilatation might be seen to take place under the positive pole.

ON XANTHELASMA PALPEBRARUM, AND ITS SIGNIFICANCE AS A SYMPTOM.

BY JONATHAN HUTCHINSON, F.R.C.S.,

Senior Surgeon to the London Hospital,
Surgeon to Moorfields and to the Hospital for Skin Diseases.

The author stated that his paper concerned the buff or yellow patches, not very unfrequently seen near the inner angles of the eyelids, which had been described by Dr. Addison under the name Vitiligoidea plana, and which had been accurately figured by Mr. Wilson, Hebra, and several other authorities. He preferred Mr. Wilson's name because it had reference simply to the very conspicuous color of the patches, and to their location; and because it involved no suggestion of similarity or relationship to any other malady. For some years the author had been engaged in collecting facts as to the clinical meaning of these curious patches, in the hope of finding that their presence might furnish a clue to their possessor's diathesis or state of health. More especially he had wished to investigate the correctness of Dr. Addison's belief (founded on but very few cases) that they were usually associated with disease of the liver. The paper was based upon the narrative of about thirty cases, and was illustrated by a series of colored drawings. The chief conclusions arrived at are summed up in the following propositions:—

1. That xanthelasma never occurs in children;

whilst it is fairly common in middle and senile periods of life.

2. That, in a large majority of cases, its subject is not seriously ill, nor in any danger of becoming so.

3. That, in a small proportion of very severe cases, jaundice, with great enlargement of the liver, are met with.

4. That, when jaundice occurs, it almost always precedes the xanthelasmic patches.

5. That the form of a jaundice is peculiar, the skin becoming of an olive-brown, or almost black tint, rather than yellow, and the color being remarkable for its long persistence.

6. That the enlargement of the liver may be very great, and that it may subside, and the patients regain good health.

7. That in many cases in which there has been no jaundice, there is yet the history of frequent and severe attacks of functional disturbance of the liver.

8. That xanthelasma occurs more frequently in females than in males, the proportion being two to one.

9. That in all cases the xanthelasmic patches appear in the eyelids first; and that not in more than about 8 per cent. do they ever extend to other parts.

10. That the patches invariably begin near the *inner* canthus, and almost invariably on the *left* side.

11. That xanthelasmic patches are of little value for purposes of prognosis, being usually the evidence of past rather than of coming disease.

12. That it seems not improbable that they may result from any cause which has induced repeated changes in the nutrition, and especially in the pigmentation of the skin of the eyelids. Thus they occur to those who have been liable to have dark areolæ round the eyes, whether from "sick headaches," ovarian disturbance, nervous fatigue, pregnancy, or from any other cause. Hence their frequency in "bilious subjects," and in the female sex.

13. That it is probable that of the causes mentioned under which the pigmentation of the eyelids may be disturbed, disorder of the liver is the most powerful; hence the fact that the more extensive cases are usually associated with hepatic disease.

The author stated, amongst other points, that when these patches are seen on the eyelids, it is usually safe to suggest that their possessor has been the subject, at some period of life, of very severe and frequent sick headaches, and that in two-thirds of the cases this suggestion would be confirmed. He added that he had met with some cases in which some of the less usual evidences of disturbance of the nervous system in connexion with sick headaches had also been observed. In one instance, a man had been liable during his headaches to become temporarily quite blind of one eye, and now and then of both; and another, a woman, was liable to sudden loss of muscular power in her arms. Two cases were related of great enlargement of the liver, with "black jaundice," both of which disappeared after a while. In one of these the patient became insane during the jaundice, but recovered afterwards, and is now well, but with large patches of xanthelasma.

As regards the pathological anatomy of the patches, the author preferred to reserve his facts, which were as yet incomplete. He showed drawings, however, to illustrate the important fact, not previously noticed, that the patches sometimes show evidence of other changes in the skin besides the accumulation of yellow material. Thus it is not uncommon for sebaceous glands to become much enlarged, and plugged by pellets of indurated secretion, blackened at the free extremity; and in one instance a number of large thin-walled serous cysts were developed. In these rarer forms of the malady, its real nature is usually disclosed by the presence of some small spots of the characteristic buff tint. It is also recognisable from the fact that, whether the disease be cystic or sebaceous, the morbid conditions are arranged above and below the inner canthus, in what may for convenience, be styled the *xanthelasmic positions*. Like xanthelasma in its more typical forms, they are also after a time accurately symmetrical.

Dr. Hilton Fagge said that in his case there was no evidence of disease of the liver. In one instance the condition had been hereditary for four generations. It was impossible to draw the line between plain and tuberous vitiligoidea. In Dr. Pavy's case both varieties were present. In her, the spots began on the hands before appearing on the face. The jaundice, he had said, was light, not dark. The dark spots were on the mucous membranes.

Mr. Spencer Watson had seen a case in a woman, aged forty, of dusky complexion, and liable to bilious attacks. There were a number of buff patches on the left eyelids, but hardly any on the right. She had disturbed vision at times, as from incipient glacoma.

Mr. Brudenell Carter said the condition of luminous zigzags surrounding the object looked at was common in hard brain-workers, and was thought to belong to hard brain-work, not to disordered liver. The fact that xanthelasmic and temporary amaurosis had been so often noted together by Mr. Hutchinson might depend on his connexion with Moorfields Hospital.

Dr. Symes Thompson had seen the clergyman referred to in the paper. The jaundice was not from obstruction, but was nervous. The recovery was complete. Such conditions might depend on defective innervation.

Mr. Hutchinson, in reply, thought Mr. Carter's suggestion fair. He still thought they might distinguish vitiligoidea plana and tuberosa. He would like to have heard more of the enormous liver which subsided.

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MEDICAL SOCIETY OF LONDON.

MR. GAY, President, in the Chair.

MR. BARNES showed a Fibrous Tumour that he had removed from the body of a woman, forty years of age, and who died very suddenly from profuse uterine hæmorrhage. The tumour seemed originally to have been without the uterus, but had protruded into the vagina; the presence of the tumour was ascertained before death, but the extreme prostration of the patient prevented any plan of removal being attempted. He had seen a similar case where a practitioner had mistaken the tumour for a fœtus; in this case the tumour became putrescent, and the patient died.

Dr. Crisp briefly related a case where labour was complicated by a large fibroid tumour of the uterus, and where the patient died of hæmorrhage.

Dr. Wynn Williams thought, from the smooth surface of the tumour, it must have been originally intra-uterine. Sudden and fatal hæmorrhage took place on its being extruded from the uterine cavity. He thought highly of the injection of the perchloride of iron solution as a means of arresting hæmorrhage. He had cured one case of hæmorrhage by removing a large tumour with the écraseur.

Mr. Peter Marshall thought the case remarkable from the rapidity with which the patient died; he would have suggested plugging the vagina.

Mr. Weeden Cooke preferred injecting the perchloride of iron to plugging.

Mr. Barnes, in reply, stated that he had stopped one attack of hæmorrhage, and the second, in which the patient died, recurred, seven hours after, so suddenly that she was just dying as he arrived.

The President spoke of the value of a saturated solution of bichromate of potash as an application for the destruction of mucous polypi.

Mr. Spencer Watson exhibited two patients, subjects of Ptosis. In one case, that of a man aged sixty years, the ptosis had existed in both eyes from the age of ten years, when he received a severe blow on the head. The patient had been perfectly relieved by the removal of a portion of the skin of the eyelids of sufficient size to bring the edge of the eyelid within the reach of the occipito-frontalis muscle. A photograph was handed round showing the state of the patient before the operation. The second case was one of congenital ptosis of the right eye, which had been operated upon in a similar way, and with equal success. In a third case shown the ptosis had improved under large doses of iodide of potassium. The patient had been a great drinker and smoker.

Dr. Semple then read a paper on "Diphtheria and the Diseases allied to it or may be mistaken for it." He gave a sketch of the history of diphtheria from the early part of the present century, showing that our knowledge of it up to the year 1858 was derived from French sources. The first well recorded epidemic of the disease was observed by Bretonneau, of Tours, in 1818. About 1857 the disease began to attract attention in this country. Dr. Semple believed it was comparatively a rare disease, at times epidemic. It seemed to attack the rich quite as often as the poor. Dr. Semple believed croup and laryngeal diphtheria to be the same affection, agreeing here with Trousseau, Bretonneau, Guersant, Rilliet and Barthez. Commonly under the head of croup was comprised laryngitis stridulosa, a disease in which there is never any false membrane formed; also laryngismus stridulus, which is a spasmodic disease with no visible lesion anywhere. By recognising these distinctions among diseases called generally croup, practical errors would be avoided. In treatment, removal of the false membrane was important, while, at the same time, the patient's strength must be supported.

Dr. Crisp said that he could not think diphtheria and croup to be the same disease. Croup was never epidemic as diphtheria was. Genuine croup was rare after seven years of age; not so diphtheria.

Mr. Jabez Hogg described the microscopic characters of the diphtheritic membrane, but said these did not much advance our pathology. He had seen the membrane on the conjunctiva.

Dr. Stocker treated diphtheria differently from croup. The symptoms were different in the two diseases.

Dr. Rogers had studied diphtheria as it first appeared in France, and he had read a paper before this Society on the subject. He did not think diphtheria to be an inflammatory affection.

Dr. Semple, in reply, said that much change in the type of disease had taken place within the last thirty years. Croup might not now be of such an inflammatory type as formerly.

Mr. Spencer Watson described two cases of Cataract, with different cortex, removed in the capsule. The first was that of a woman eighty-two years of age, whose sight had been failing for many years. The capsule being found at the time of operation exceedingly tough, and the suspensory ligament of the lens being weak, the lens was removed in its capsule. No vitreous escaped, and excellent sight was obtained. The fluid cortex of the lens allowed the dark-brown amber nucleus to be seen moving about within the capsule, just as the yelk of an egg might be seen within the albumen. The case was referred to a committee consisting of Mr. Jabez Hogg, Dr. Dempsey, and the exhibitor, to report on the microscopic appearances presented by the milky fluid which constituted the cortical substance of the cataract. A second cataract, of a similar kind, had been removed in a similar way from a man of fifty-five years of age, who had up to the last year or two been able to see well with the aid of biconcave glasses, notwithstanding the clear indications of cataract afforded by the ophthalmoscope and by focal illumination. The capsule and nucleus were shown. It was agreed that Mr. Hogg, Dr. Dempsey, and Mr. Watson should examine the fluid, and report on the case at the next meeting of the Society.

Dr. Prosser James then read the paper of the evening "On Chloral Hydrate." The author confined himself to a relation of his own clinical experience of the effect of the drug. When chloral first came into notice as a hypnotic Dr. James made use of it to see how far it would prevent sea-sickness. One person who was a very bad sailor took one scruple of chloral before crossing the Channel, and though the passage was long and rough, he escaped all sickness. In the case of an invalid who took the chloral the effect was equally satisfactory. Dr. James believed that a full dose of the drug, taken before leaving the harbor, was about the best method of employing it as a preventive to sea-sickness, and when used in this way he had every reason to speak well of its effects. Orange-flower-water seemed the best vehicle to disguise the flavor of the chloral. A case was given where dangerous after-effects were shown following a half-drachm dose of chloral. This dose was given to a young lady in great pain from neuralgia; she had the best night's sleep she had known for months, but next day the pulse and temperature fell in an alarming way, and she refused again to have recourse to the chloral, even though the neuralgia returned severely during the night. In the case of a lady who suffered with dysmenorrhœa, and where digital examination was extremely painful, Dr. James gave two scruples of chloral; in a quarter of an hour she was asleep. A complete examination was then made with the uterine sound, a laminaria bougie was introduced without waking her, and in time she was quite cured. In conclusion Dr. James said that while his experience taught him the necessity of care in the use of chloral, yet for one case where its action was unpleasant he could quote fifty where it succeeded well.

Mr. Jabez Hogg had tried chloral in half-drachm doses for the neuralgia of herpes. After five doses had been taken at intervals of two hours, the patient slept for six hours, and then woke up in much discomfort from spasms and cramps in his lower limbs. The neuralgia was not cured, but eventually he got better after taking bromide of potassium.

Dr. Routh had seen excessive prostration and exhaustion follow the administration of but a moderate dose of chloral. He thought it was a cumulative medicine. The best antidote to its poisonous action was strychnine.

Professor Attfield, of the Pharmaceutical Society, said that he did not think that much impure chloral was now to be met with. In good chloral hydrate there was eighty-two per cent. of chloroform. In the chloral alcoholate (an impure article) the percentage was but seventy-two. Syrup of orange-flowers seemed the most popular vehicle for the administration of chloral hydrate.

Mr. Watson asked Dr. James if, in case of prostration following the hypnotic action of chloral, he had found the temperature to be lowered.

Dr. James, in his reply, stated that he constantly observed a great fall of temperature, even to 2°, together with a fall in the pulse, in those cases of extreme prostration alluded to by Mr. Watson.

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PATHOLOGICAL SOCIETY OF LONDON.

HILTON, Esq., F.R.S., President, in the Chair.

MR. B. SQUIRE brought under the notice of the Fellows a patient suffering from Pemphigus, with bullæ formed on the lining membrane of the mouth; a second patient in whom the fibro-cellular tissue had considerably hypertrophied about an old eczema of the back, giving rise to excrescences of a cauliflower-like aspect. A good model of this kind of hypertrophy following long-continued congestion of the skin is to be seen in the College of Surgeons Museum. A third case was one of zoster of the hand and forearm. Mr. Squire said he did not believe that the eruption in zoster always followed the course of the nerves, as in the present case, in which it was distributed mainly as the ulnar nerve, but not completely so.

Dr. Clifford Allbutt made an interesting communication upon the Microscopic Appearances of the Cord as seen in four cases of Traumatic Tetanus, illustrating his remarks with specimens "put up" for the purpose. In the first case tetanus resulted from injury of the leg, and the cord was soft in many parts, diffluent in the upper dorsal region, the sheath of the posterior tibial nerve being full of pus for two-thirds of its length. In Case 2 the cord was softened. In Case 3 the cord in the lower dorsal region was soft, and there was a clot under the pia mater. The posterior tibial nerve was bathed in pus for some distance from the foot. The tetanus followed Chopart's operation. In Case 4 tetanus followed laceration of the hand, occurring together with fracture of the leg, and in this case the cord was softened throughout more or less. Submeningeal hæmorrhages were also present. Comparing the appearances in the several cases, it was seen that they were similar, only differing in degree, as regards softening; in two out of the four cases meningeal hæmorrhages were observed, the vessels of the cord were generally distended, thickened, varicose, and plugged; and in one case there was universal thrombosis, with spaces around the vessels filled with matter resulting from the granular disintegration of the clots. In two of the cases there was considerable blood-staining of the cord by oozing from, if not actual rupture of, the vessels; and in two cases hæmorrhage into the cord in different places. Both in the pia mater and in the central grey matter similar vascular changes were observed. The central canal of the chord was stuffed with epithelial matter in over-abundance. There was nuclear proliferation in the connective tissue, probably in excess of health. The cells in the anterior horns were singularly wasted in a very symmetrical manner, no doubt due in part to exudation about the vessels, but also to changes in the cells themselves. The cells were the subject of yellow disintegration, beginning in the centre of the cells, and invading them from centre to periphery. Many were seen to have run together, forming an irregular and more or less fatty mass, these masses giving rise to the appearance of small yellow masses in the anterior horns. At any rate, the latter were destroyed more or less by exudation into them, and peculiar degenerate changes in the cells.

Dr. Dickinson stated that he had found very similar changes in other cases, but he had always fancied that the steeping of specimens in chromic-acid solution gave rise to an appearance of thrombosis in the vessels, and he doubted whether this condition, as described by Dr. Allbutt was an ante-mortem phenomenon.

Dr. Moxon, in conducting post-mortems on tetanus, had always been obliged to end with a negative story. He had never seen anything like inflammation of the cord in cases of tetanus; congestion, perhaps, but he had also observed an anæmic condition. If tetanus were due to histological changes in the chord, we should probably get paralysis as a consequence in cases of recovery. Death took place under conditions of hyperaction of the cord, and not diminished action, and the general phenomena pointed also to an irritable state as the morbid condition. He thought that the hæmorrhage might be due to the unskilful removal of the cord from the body.

Dr. Dickinson differed from Dr. Moxon in the latter point, as he had seen serious changes in the cord in some cases: the diameter of the cord had been much increased, this being due to extravasation into the centre of the cord, with serious exudation around.

Mr. Holmes said that Dr. Moxon had surely seen inflammation of the cord as the result of mechanical injury; and other causes give rise to symptoms very like tetanus.

Dr. Allbutt explained that, as far as he could judge, the hæmorrhages and thromboses he had described were not post-mortem conditions.

Dr. Morell Mackenzie exhibited a specimen of Constricted Trachea and Syphilitic Deposits in the Liver, which had occurred in a man aged thirty-nine. The symptoms were those of bronchitis, and there was dullness at the lower part of the right side of the chest in front. The prominent symptom, however, was dyspnœa of a very severe and paroxysmal character. Several times the patient was, for many hours, quite unconscious, pulseless, and with scarcely perceptible respiration. Between the attacks the patient was well, and even gained flesh. He died suddenly, in an attack of dyspnœa. The trachea, on post-mortem examination, was found, about an inch above the bifurcation, to be contracted to the size of a goosequill by a puckered cicatrix; there was no thickening external to the trachea. There were numerous deposits of yellow matter in the liver, and a similar deposit on one kidney. The lungs were much congested and emphysematous.

Dr. Moxon exhibited specimens from a case of General Colloid Cancer of the Skeleton. This case, he said, he brought before the Society because he never saw one before, and did not find such a one on the register of the Society. The characters were very certainly those of areolar gelatinous cancer. There were numerous growths on the skull, vertebræ, sternum, and ribs. The only other parts affected were the corresponding lymphatic glands. Most parts of the tumours showed gelatinous areolar cancer of the usual type; but there were parts that ran into the characters of sarcoma. His belief was that these elements represented transitional forms from cartilage. Very similar appearances are often found in the tumours from the parotid region in the neck, which vary from mucous tissue to cartilage. The colloid matter was, however, more plentiful in these specimens than is usual in the cervical tumours. The extensive diffusion of the tumours in the skeleton, and in no other part, was interesting; and several such cases have been recorded.

Dr. Moxon likewise exhibited specimens showing the Change of Diffused Miliary to Softening Grey Tubercle. The first specimen was from a young man who came into Guy's with tuberculous pyelitis and cystitis. He lay on his back confined to his bed for two months before death, and latterly signs of chest complication appeared. In this case the interest lay in the fact that a distinct gradation of small grey tubercles into cavities was seen, with all intermediate stages of yellowness preceding the softening. This would not, Dr. Moxon believed, be a very unusual thing; rather it would represent an instance of a very common course; but in the usual examples which occurred the disease was so limited to the lung, and so situated in it, that other constructions could be raised on the facts. Thus, to mention two of these: first, when cavities and tubercles were present it might be said these were not "true" tubercles; and secondly it might be said that the tubercles had arisen secondarily to the cavities by a mode of local infection comparable to the infection in the celebrated inoculation experiments. This case, in a peculiar and in a very rare way, was insusceptible of these explanations. For the trueness of the tubercle was shown by its being part of a general diffused tuberculosis with all the characters of the so-called "general tubercle" secondary to the tubercular pyelitis, and the idea of a local infection would not be entertained by anyone who observed the very gradual change from the small cavities to the grey tubercles, and the very slight degree of difference between the successive stages of change. Dr. Moxon wished to place the case on the records of the Society as showing that the diffuse grey tubercle of miliary size was subject to the expansive and destructive changes that pneumonic tubercle showed, and that those changes were indistinguishable from and anatomically identical with pneumonic tubercle. The other specimen was from a man who died of gangrene of the foot, from exposure while weakened by phthisis. It showed, as seen in a drawing, the structure of the large masses of iron-grey tubercle sometimes called "granular pneumonia." The granules were seen to be tubercles receding and shrivelling, making clusters of wasted minute knots, which knots formed at the surface of the cluster, and wasted as they were carried, as it were, to the centre by the rise of new tubercles outside them. Thus large masses of tubercle arose, and the black change that accompanied all active chronic and lung-disease came about and defaced them. Dr. Moxon brought this specimen because two patches in the lung so clearly and beautifully showed that the grey knots in the form of tuberculous affection, as in other forms, when more acute in their rise and spread, put on a form identical with the yellow or pneumonic tubercle. In both these patches the centre was occupied by old cornified tubercle; but the outer part in one was composed of recent grey tubercles; and in the second the otherwise similar patch was composed of soft yellow tubercles, the two being evidently varieties of the same change.

Dr. Moxon also showed a specimen illustrative of Chronic Pneumonia in Syphilis, and specimens of lardaceous spleen and kidneys, syphilitic orchitis, and subacute pleurisy, with pneumonia were exhibited. They were from a man who, when carrying a sack of barley, suffered fracture of the cervical spine by another sack falling on him. The case appeared important, as showing what a great degree of muscular exertion a man so diseased was capable of. The pleurisy was certainly in part recent; it had a new surface of soft lymph, and the roughness of this, with its transverse ridges, showed that rubbing must have been rather vigorous. The state of the kindneys, spleen, and liver certainly made his muscular power remarkable. The pneumonia seen in the lung when fresh was remarkable because of the roundness of the edges of the patch, like the advancing curve of a spreading eruption. The belief that pneumonia was caused by syphilis had its advocates. The question is discussed rather fully by Lancereaux. A white hepatisation was the chief condition mentioned in a series of cases of infantile syphilis in Virchow's *Archiv*. Authors on "Fibroid Phthisis" adduce syphilis among the other conditions. Dr. Moxon said that in the relation of syphilis to lung disease these propositions were true: 1, that phthisis would run through its course in syphilitics in an ordinary way; 2, that a chronic white hepatisation, with tendency to circumscribed gangrene, occurred especially, but not only, in persons certainly syyhilitic; and, 3, that syphilitic gumma occurred in small quantity in some cases. From the present and other cases, Dr. Moxon believed that circumscribed scars on the pleura, such as were seen here, and insidious chronic pneumonia, occurred especially in syphilitic people.

Mr. De Morgan showed a specimen of Lymphosarcoma, removed from the left pectoral region of a healthy man, aged forty-five. Four years ago he fell out of health, and all his body, save the hands and feet, became the seat of hard œdema, which lasted for many months, and then disappeared. There was no disease of any internal organ, but a short time afterwards he noticed a tumour in the neck, which increased rapidly for a time, and then diminished. There is now a hard, almost bony-feeling tumour, with one or two smaller ones, in the left inferior triangle of the neck. The chest tumour began about a year ago, and for the last two months had increased to such a size as to keep his arm at nearly a right angle with the body. On removal, the tumour, which weighed 4½ lb., was found by Mr. Arnott to be of the nature chiefly of lymphosarcoma. The points of pathological interest were: the connexion, if any, between the previous œdema and disease of the lymphatic system, the probable identity in nature of the neck and chest tumours, and the remarkably healthy condition of a patient with this disease, which is generally associated with progressive debility.

Mr. Wagstaffe showed an exceedingly rare specimen of probable Fibrous Tumour of the Heart, which occurred in the practice of the late Mr. Nunn, of Lyndhurst. It was removed from the body of a child three months old. The child was well developed, and quite healthy until within a few weeks before its death, when it had occasional transitory spasms, in one of which it died suddenly. The tumour was globular, about two inches in diameter, pinkish-white on section when first examined, and of a very firm and uniformly fibrous texture. It was situated in the substance of the septum ventriculorum, and projected equally into the two ventricles, but the muscular substance of the septum was still spread over the tumour. Microscopically it appeared to be mainly composed of well-developed white fibrous tissue. Its structure, its occurrence at so early an age, and the absence of blood or inflammatory products, argued against its being simply a result of the organisation of blood-clot, or of inflammatory lymph, or of syphilitic deposit, but rather pointed to its being a true fibrous tumour developed in the substance of the septum. There was no evidence of its being malignant. Mr. Wagstaffe said there was only one case on record in the Transactions of the Society of a true simple tumour of the heart, and that was of a peculiar cystic form. He considered the specimen, therefore, unique. Its occurrence in a child of three months old, without interference with nutrition, and with such slight symptoms, made it a case of extreme clinical interest.

OBSTETRICAL SOCIETY OF LONDON.

Dr. Braxton Hicks, F.R.S., President, in the Chair.

Dr. Protheroe Smith exhibited the Pelvic Viscera of a woman who had died from spontaneous rupture of an ovarian cyst, complicated with a fibroid tumour of the uterus. The patient had suffered from severe diarrhœa for eight months before coming under observation, and also from sacral and bearing-down pains. The diagnosis which was made was correct, as verified by a post-mortem examination; but before any treatment could be adopted the patient was seized suddenly with severe abdominal pain and vomiting, and she died in eight hours. After death an ovarian cyst was found occupying the right side of the abdomen, and the peritoneal cavity contained two or three quarts of dark-colored fluid, which was seen pouring out from an opening in the cyst immediately behind a globular fibroid tumour on the left side of the uterus. Dr. Protheroe Smith brought forward the specimen in evidence of the necessity of performing ovariotomy early under similar circumstances.

The President observed that Dr. Protheroe Smith had alluded to a very important point in practice—namely, how early the operation was justifiable in ovarian disease. There could be no doubt that many lives were lost whilst waiting, and he instanced one where another month would have rendered the operation impossible.

Dr. Phillips remarked that the early removal of an ovarian cyst had occupied the attention of many practitioners, and that an American physician was so impressed with its importance as to advocate, in certain cases, the performance of the operation through the posterior wall of the vagina, while the cyst was yet small.

Dr. Barnes observed that there was another mode of dealing with very early ovarian dropsy from which good might be expected—namely, to puncture the cyst through the vagina by Dieulafoy's aspirator, and to inject it with iodine. He related a case in which this had been done, and thought the method deserved further clinical investigation.

Dr. Wiltshire said that the operation referred to by Dr. Phillips was called elytrotomy. Had gastrotomy been performed for the removal of the ovarian cyst now exhibited, he thought the uterine fibroid might also have been removed at the same time.

Dr. Edis exhibited an Ovarian Cyst, which he had removed from a patient at the Soho Hospital, on January 28th. This case also exemplified the advantage of early operation. The adhesions had probably formed during the last month. The patient was doing well.

Dr. Wiltshire agreed with Dr. Edis that, as a rule, the vascularity of ovarian adhesions increased with their duration. He advocated the evacuation of secondary cysts before attempting to break down any adhesions.

Dr. Playfair read a paper "On Irritable Bladder in the Latter Months of Pregnancy." The author remarked on the frequency with which a severe and intractable form of irritable bladder was met with in the last few months of pregnancy, often giving rise to much distress and suffering, and little amenable to general treatment. He stated his opinion that many of these cases were due to a distinct mechanical cause—namely, pressure on the bladder resulting from an oblique or transverse position of the fœtus. He described how these cases could be recognised by a careful examination of the abdomen. With regard to treatment, he stated that little or no benefit could be expected from drugs, but said that immediate relief could often be obtained by altering the position of the fœtus in utero by abdominal manipulation, after the manner described under the name of "external version," by Wigand, Stolz, Mattei, and others. He described the method by which this could be effected, and concluded the paper by detailing three cases in which the most severe forms of dysuria were immediately relieved by this simple procedure, after the failure of every other plan of treatment.

Dr. Barnes said that if it should be proved that dysuria was a symptom of transverse or oblique position of the child, we should have a valuable indication to correct the malposition before labour came on by substituting external bipolar version under the most favorable circumstances for turning at the time of labour. He would ask why Dr. Playfair, having rectified the position of the child, did not secure it in due relation to the axis of the uterus? This could be done by a bandage and two pads, one applied to each pole of the fœtus and directed towards the median line.

The President considered himself indebted to the author for pointing out the fact that obliquity of the uterus produced irritability of the bladder. He was, however, at a loss to account for it by the pressure of the fœtus on the bladder, as the head in ordinary positions would press quite as much as the shoulder, if not more, and that against the most irritable portion of the bladder—namely, the lower portion. He would suggest another explanation, the disturbance to the form of the bladder by the altered form of the uterus.

Dr. Protheroe Smith inquired whether the author of the paper had observed a want of lumbo-sacral curvature of the spine in the cases related by him. Dr. Smith had remarked, in some cases of extreme irritability of the bladder in pregnant women, not only a straight spine, but, as a result, an increased proportion of the abdomen forward, a condition which was effectually relieved by his pelvic band.

Dr. Playfair, in reply, stated that all the cases had terminated by head presentations. He did not of course, hold that all cases of irritable bladder could be traced to this source. The three cases he had detailed were the only ones he had seen in which the transverse position of the fœtus could be clearly made out.

Medical Annotations.

"Ne quid nimis."

PROFESSOR VOIT ON NUTRITION.

The current number of the *Zeitschrift für Biologie* is chiefly occupied by a paper of Professor Voit on the history of our present doctrines regarding the source of muscular power. Voit commences his paper by stating he regrets to find that he must assume a position of antagonism to one whose physiological labors have been so valuable as those of Liebig, but the weight of that name was so great that he considered it to be indispensable for the further progress of science that a reply should be given to his recently published statements. He points out the essentially different lines of inquiry that the chemist and the physiologist must necessarily pursue, and whilst acknowledging the great advantage he derived when first he undertook, fourteen years ago, his inquiries into the nutrition of the body, from Liebig's views and researches, he soon found that further advances must be made, not independently of chemistry, but nevertheless essentially by physiological and not by chemical research and experimentation; and to the carrying out of such researches all his efforts, many of them made in concert with Pettenkofer, and requiring the conquest of many difficulties, have been directed. He believes that those efforts have led to the firm establishment of certain broad and important facts, and in consequence he feels hurt at the statement made by Liebig that "now, after twenty-five years, our knowledge of the chemical processes that take place in the living body, though much wider in extent, has scarcely become more profound, and the old conception of the value of albumen in nutrition remains unchanged."

Now Liebig's original views on nutrition, and the source of muscular force, embraced several distinct points:—First, that muscular force is exclusively derived from the disintegration of albumen; secondly, that muscular work is the only cause of the disintegration of albumen, so that with more work more albumen undergoes disintegration, and the amount of nitrogenous excretion becomes a measure of the amount of muscular force that has been exerted; and lastly, that only organized albumen undergoes disintegration, the albumen of the food taking no part in the process, but being subservient only to the regeneration of the disintegrated organized albumen, or, in other words, to the restoration of the muscular tissue itself used up in the production of force. Not one of these statements can, by the light of modern research, be held to be correct, and Professor Voit's essay, which extends over 100 pages, is a long polemic against them. He treats incidentally of the question of the origin of the fat of the body from the albuminous compounds, and of several other points connected with the physiology of nutrition.

WATER FROM THE CHALK.

Professor Tyndall's proposal to supply London with water from the chalk has produced a letter in *The Times* from a writer who seeks to show that pure water would be injurious to men, from its very tendency to dissolve and appropriate any noxious matters that it might encounter. His argument is that any idea of purity must be Utopian; and that man is placed in the world to use its good things as they are. The writer forgets, or perhaps does not desire to see, that Professor Tyndall's proposal is to take natural water, and to remove from it a single substance which unfits it for certain domestic uses. By doing this he would shut out, partly or entirely, a water that is not natural in any sense—that has been frequently defiled by human excrement and tidal filth, and that carries into our cisterns all manner of solid dirt in suspension. There is here no straining after unattainable purity; but simply a proposition that, having a good and a bad thing equally at our disposal, we should use the former rather than the latter. It has also been objected by more than one writer that the yield of the chalk would be insufficient, and that there are serious engineering difficulties in the way of its being utilised. To the first part of this objection the Professor himself furnishes a very simple and conclusive reply—saying, "Let us at least use the good water as far as it will go." To the second we make answer that engineers always find means of overcoming difficulties that it is not their business to magnify.

THE REMAINS OF PLATYCNEMIC MEN IN DENBIGHSHIRE.

An interesting paper by Mr. Boyd Dawkins and Prof. Busk appears in the January part of the

Journal of the Ethnological Society, on the occurrence of the remains of men whose tibiæ were remarkably compressed laterally, giving to transverse sections of the bone almost the form of a vertical antero-posterior section of a canine tooth, instead of the irregularly rhomboidal form by which they are usually characterised. This peculiarity was first noticed by Dr. Falconer and Mr Busk in 1863, in human remains procurred from the Genista cave at Gibraltar, and almost coincidently by Prof. Broca, in tibiæ procured from the dolmen of Chamant (Oise), and subsequently in those discovered at Montmartre by M. E. Bertrand. Mr. Busk considers it in the highest degree improbable that it constitutes a race character, and still less that it can be looked upon as indicative of simian tendencies, a notion that M. Broca seems inclined to favor. The remains were found in a cave at Perthi Chwareu, near Corwen, with bones of the dog, fox, badger, pig, roe and red deer, sheep, Celtic shorthorn, horse, water-rat, hare, rabbit, and eagle, and in another at Cefn, near St. Asaph, where the tomb was remarkably divided into chambers. There appear to have been at least sixteen bodies, and Mr. Dawkins refers them to the Neolithic age.

Correspondence.

"Audi alteram partem."

NITRATE OF SILVER IN PAINFUL SWELLING OF THE JOINTS IN RHEUMATIC GOUT.

To the Editor of The Lancet.

Sir,—I was called to see a moderately robust male patient lately, about twenty-six years of age. He was suffering intense agony from rheumatic gout, affecting chiefly the knees and ankles; the right ankle especially was swollen and glistening. He could not bear the least touch without screaming, and had been unable to rest in any position. The necessity for relief seemed to be so urgent that, in the hope of attaining this end, I applied nitrate of silver freely over the whole of the inflamed surfaces until every portion was well covered with it. I used an ordinary stick of caustic, dipping it from time to time in water. In less than two hours the pain was sensibly lessened; the amelioration continued, so that in twelve hours the pain had so far subsided as to allow the free handling of the joints, and he could bear to have his limbs moved. The pain never reappeared when the nitrate had taken full effect. In a few places, where pain lingered, a fresh application was made. There was a partial blistering of the surface, but as in the course of the illness the blackened cuticle separated, the skin was natural and healthy underneath. The illness was a tedious one; and if relief had not been obtained as it was, it might have been more serious.

I have not met with a mention of the use of nitrate of silver in such cases, but I am convinced that few things answer better under the circumstances.

I am, Sir, your obedient servant,
Walter Fergus, M.D.

Malborough, Feb. 22nd, 1871.

ACTION OF CHLORAL ON THE BLOOD.

To the Editor of The Lancet.

Sir,—At a recent meeting of the Obstetrical Society (see May No.), Dr. Playfair remarked that he was unable to divest himself of a fear that in a certain case of puerperal convulsions, chloral, having first acted admirably, eventually contributed to the fatal result. A large and watchful employment of this drug leads me to believe that his apprehension was well founded.

It is supposed that chloral undergoes in the blood a change accompanied by the evolution of chloroform, just as occurs to a solution of chloral when treated with liquor sodæ. But, while thus changing its own form and constitution, how does it affect the constitution of the blood? Clinical facts have been tending to show that the blood does not simply act as an indifferent or mechanical channel for the distribution of chloral, but that the fluid undergoes change of composition itself, and this in the direction of dissolution. In a large majority of cases the seasonable use of a proper dose of hydrate of chloral is, doubtless, productive of unmixed advantage; in others there is a sequel of seediness, and in others such marked and persistent pallor as to suggest that blood damage has been undergone.

Not long ago a lady, aged about forty-five, stout, and said to be perfectly healthy, was seized at midnight with backache, headache, rigors, and vomiting; much aching and sleeplessness continued for three days and nights, for which successive doses of chloral, from forty to sixty grains, were administered. I saw her on the fourth day, when she was evidently suffering from moderate small-pox, after vaccination, and from concurrent purpura; small ecchymoses being freely distributed over the chest and abdomen, and the urine deeply dyed with blood. The tongue, breath, and general emanations all bespoke blood disorganisation. Chlorate of potash, tincture of perchloride of iron, and port wine were employed liberally. The hæmorrhage ceased; but in forty-eight hours (the sixth day) she died of syncope while sitting up. After death, purpuric staining was rather considerable; a black alvine discharge rendered it not unlikely that internal hæmorrhage had preceded death. There was no œdema anywhere, and the small-pox eruption, though distinct, was thinly scattered and trifling. Inquiry showed at once where the latter had been caught.

Did chloral contribute in this case to the rapid and fatal disintegration of the blood? The symptoms were just those of small-pox concurring with albuminuria. Can chloral degrade the blood as urea does? I never liked chloroform for puerperal convulsions, which are almost invariably uræmic, and certainly should not give chloral.

Without entering farther into the subject now, I cannot help suggesting as a most important problem the inquiry, How far, and under what circumstances, does chloral practically become a blood poison? Yours obediently,

Stephen Monckton.

Maidstone, Jan. 24th, 1871.

◆

DISEASE OF THE METATARSUS.

To the Editor of The Lancet.

Sir,—In Dr. Neale's case of ulcerating corn I fear he will find the bones effected more extensively than he anticipates. Nothing, I believe, is so deceptive as the external indications of disease of the tarsus and metatarsus. In illustration of this, I would briefly mention the points of a case almost similar to his, now under my care.

A girl had a corn on the inside of the metatarsal bone of the great toe for four years. In the middle of this was a very small hole, from which sanious matter exuded, always in small, often in large quantities. A very fine probe carefully introduced impinged on roughened bone, and penetrated horizontally to some distance. The external appearpearance of the foot was absolutely unaltered; nothing was to be seen but a white patch about the size of a sixpence, with this weeping sinus in the middle. A more thorough operation being objected to, the corn was removed, and the subjacent bone gouged as far as possible, though, as was recognised at the time, unavoidably to an insufficient extent. The wound, though carefully dressed from the bottom, assumed on healing precisely the character of the original sore. *Carte blauche* was then given, and a tentative incision having been made, the whole median aspect of the metatarsal bone of the great toe was found to be hopelessly carious, the compact tissue on the inner side being unaffected, save for a small hole, through which the probe passed. It was then removed together with the great toe; and the upper half of the second metatarsal bone, and the internal cuneiform bone, which formed a continuous mass of carious tissue with the head of the first metatarsal, were also excised with gouge and forceps. The wound has now nearly healed, no trace of a sinus being left, and there is no doubt whatever that the patient will recover with unimpaired usefulness of the foot.

I remain, Sir, yours truly,

Maxwell Reilly,

January, 1871. Surgeon, Wigan Union Infirmary.

◆

HYDRATE OF CHLORAL IN SPERMATORRHŒA.

To the Editor of The Lancet.

Sir,—I think it may be worth while to make a note of the fact that I have found hydrate of chloral of service in a case of seminal weakness. The chloral was given for sleeplessness, in doses varying from twenty to forty grains; and since its administration, for more than three months, the nocturnal emissions have entirely ceased. This, of course, may be a mere coincidence; but I fancy it is worthy of further trial.—Yours, &c.,

B. B.

March, 1871.

Foreign Gleanings.

GASTRIC JUICE ENEMATA IN CANCER OF THE RECTUM.

Dr. D'Arpem, practising in the island of Elba, has published in the *Imparziale* of Florence (March 1st, 1871) a case illustrating the marvellous effects of this juice in cancer. The patient is a married woman, aged thirty-eight, who suffered, according to the author's diagnosis, from carcinomatous ulceration of the rectum and cervix uteri. After having controlled the uterine hæmorrhage with perchloride of iron, Dr. D'Arpem was in doubt as to the treatment of the malignant ulceration, when he heard of the views of Professor Schiff on the subject. The latter had for some time advocated the use of gastric and pancreatic juice in cancer. Being applied to, the professor furnished the author with artificial gastric juice, and advised injections into the rectum or about seven fluid drachms of the juice daily. Much pain was experienced from the first injection, but this was lessened by the use of some almond oil. The seven drachms were now divided into three parts, injected separately three times a day. This was continued for twenty days, when considerable improvement had taken place, both as regards the rectum and the womb. The patient was now so well as to be able to perform a journey with her husband, and on her return the cicatrisation of the ulcer was complete. She had continued the enemata at longer intervals during her absence, and she now presented all the outward signs of health. Such are the facts related by the author. If the diagnosis were perfectly reliable, we might harbor the hope that the specific for cancer has been found. But the case is isolated, and does not present the proper guarantees as to diagnosis. Nor is it likely that numerous trials will be made in the same direction.

INVESTIGATIONS RESPECTING NORMAL AND PATHOLOGICAL LOCAL TEMPERATURE.

Dr. Jacobson, of Königsberg, relates, in Virchow's *Archiv*, vol. 51, second part, a series of experiments upon animals, by means of thermo-electricity, to ascertain the actual temperature of some viscera. He found, contrary to Claude Bernard's opinion, that the blood is warmer in the left than in the right heart. But he verified and found correct another assertion of Bernard's —viz., that the liver presents a higher temperature than the axilla and the rectum. Dr. Jacobson also recognised that the temperature of intensely inflamed skin and muscles never runs as high as the temperature of inner portions of the body, such as the upper part of the rectum or vagina, or the cavity of the abdomen. M. Bernhardt and Dr. Jacobson excited, by caustic injections, pleuritis and peritonitis with exudation, and by carefully experimenting and measuring, they found the following opinion of John Hunter's in accordance with fact, viz.: "That local inflammation cannot raise the temperature higher than the degree of warmth found at the source of the circulation."

THREE CASES OF TETANUS CURED BY HYDRATE OF CHLORAL.

Dr. Dorigo has published, in the *Gaz. Med. di Padova* of December 17th last, the case of a boy of thirteen who suffered from tetanus in consequence of a wound of the sole of the foot. The final recovery took place on the fifty-fourth day, the average daily dose having been ninety grains. When the narcotic effect became weak, the chloral was immediately given again. Dr. Grandisso-Silvestri mentions, in the same paper, another case, that of a girl of eight years old, who had tetanic attacks after a lacerated wound of the middle finger of the right hand. She soon recovered, after having ingested about half an ounce of chloral in five days. Dr. Bensasson, of Tunis, has also communicated to the *Imparziale*, of Florence (Feb. 16th, 1871), the successful case of a boy, aged thirteen, who was seized with tetanus in consequence of a nail running into his foot. The treatment lasted thirty-five days, about five ounces of chloral being used altogether.

INSTRUMENTAL COMPRESSION IN POPLITEAL ANEURISM.

Dr. Arata, surgeon of the Hospital of Genoa, lately tried Broca's compressor, which presents two pads acting alternately on the femoral artery, either at the groin or a little distance below. The case was that of a man aged thirty-five, and the aneurism had been the consequence of a violent strain. Digital compression had been tried at the patient's residence, but was given up owing to inadequate assistance. The instrumental compression was required for forty-three days before the pulsations of the sac ceased. The man, however, eventually made a good recovery; though this case offers a great contrast with those of digital compression which have been recorded, and where, in a few days, the consolidation of the contents of the sac was obtained.

IODIDE OF POTASSIUM IN THE SECOND STAGE OF BRIGHT'S DISEASE.

Dr. Créqui, of Brussels, has employed this remedy with great success in the second—i.e. the parenchymatous—stage of this complaint, and explains the failures of other practitioners by the small doses they ordered. Dr. Créqui begins with six grains a day, and gradually ascends to six drachms, or half an ounce, per diem. To secure the toleration of the salt he adds a little opium, or some subnitrate of bismuth. Several Italian medical men have used the iodide in a similar manner with good results; some cases, however, ended fatally. It is supposed that the iodide of potassium has the power of limiting the morbid secretions of the connecting tissue which occurs round the Malpighian bodies in parenchymatous nephritis.

EFFECTS OF A FORMER SYPHILIS UPON WOUNDS.

Dr. John Merkel, of Nürnberg, relates three cases, in the *Aertz. Int. Bl.*, No. 49, 1870, in which syphilitic symptoms made their appearance when cicatrisation was almost complete. One case was one of hydrocele, tapped and treated by Beck's method of incising the tunica vaginalis and fixing it by sutures to the external skin. The two others were gunshot wounds. The latent syphilis did not interfere in the least with the progress of healing; but just when the solutions of continuity were upon finally closing, either eruptions appeared over the whole frame, or unmistakable syphilitic tubercles formed on the margins of the wounds. The author ordered mercurial frictions with the best effects.

INFILTRATION OF URINE.

This infiltration in the cellular tissue is generally regarded as extremely dangerous, and sure to excite gangrene. Dr. Menzel shows, however (*Wien. Med. Woch.*, Nos. 81 to 85, 1869), that healthy urine has no such effect, and that apprehensions in this respect are greatly exaggerated. He proves by experiments that, with an alkaline urine, the ammonia is the principal agent in the septic phenomena. In cases of injury to the urethra, where no actual retention occurs, no very active measures need be had recourse to. When, however, no instrument can be passed, and incomplete micturition occurs, we are advised to cut down at once upon the urethra.

INHALATIONS OF GLYCERINE IN CROUP.

Dr. Stehberger, having found some time ago that such inhalations were very useful in chronic hoarseness, was led to use them also in croup. He noticed that thereby the inflammation was diminished, moisture induced, and that the patient began to expectorate freely. Dr. Stehberger uses Siegle's spray apparatus; and when the glycerine is not thought perfectly pure, he adds a little water. The inhalations may, according to the nature of the case, be repeated every half hour, hour, or hour and a half. They should be continued until the patient's voice is perfectly clear.

CANCEROUS INOCULATION WITH THE TROCAR.

Dr. Reineke has published, in Virchow's *Archiv* (51 Bd., 3 Heft), two cases of abdominal cancer, in which paracentesis was used. Both cases ended fatally, and it was found that cancerous tumours had formed along the track of the trocar. The author considers this as a regular inoculation, and thinks that, in appropriate cases, experiments should be undertaken. The tumours here alluded to are very different from the cancerous deposits which may take place at a distance from the region principally invaded by carcinoma; they were evidently the result of direct traumatic contamination.

UTERINE FLEXIONS.

Dr. Malachia De—Christoforis (*Sardegna Medica*) corrects such flexions with Dr. Meadows's sound and pessary, and states that, in three cases of dysmenorrhœa and sterility, he succeeded in a most satisfactory manner, as the patients were freed from pain, menstruated regularly, and became pregnant. The author says expressly that this treatment is useful only in such cases as are simple, and uncomplicated with inflammation, tumours, or other pathological states, especially adhesions of the fundus uteri with surrounding parts.

INDIA-RUBBER BREAST-PUMPS.

Dr. Mettenheimer points out (*Memorab.* xiv., 12), that aphthæ are often generated by the use of these. In spite of cleaning the apparatus, a difficult task as the neck is small, some milk is mostly left in the india-rubber bottle. Decomposition ensues, and germs are generated which eventually settle upon the nipple, and thus contaminate the child's mouth. If the apparatus mentioned is used at all, it will be necessary to wash it out each time with diluted spirits of wine.

A NEW DISINFECTANT.

The *Scalpel*, of Brussels, states that the Chemical Society of Frankfort recommend a new disinfectant, composed of gun-cotton moistened with a solution of permanganate of potash. Ordinary cotton does not answer because it decomposes the permanganate.

News Items, Medical Facts, &c.

During the last three months there has not been any death from cholera, small-pox, or other epidemic disease among the European troops stationed in the Madras Presidency; and, with the exception of the death of a soldier from cholera, there has been no fatal case from the effects of these diseases among those troops during the past five months.

News has been received from Zanzibar that Dr. Livingstone was alive and well, but destitute.

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THE LANCET.

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PRACTICAL PHYSIOLOGY.

Lectures
ON
EXPERIMENTAL PHYSIOLOGY.

By Wm. Rutherford, M.D., F.R.S.E.,

Professor of Physiology in King's College.

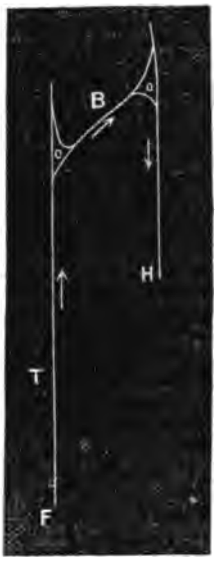
LECTURE V.

INNERVATION (CONTINUED).—CONDUCTION OF NERVE ENERGY (CONTINUED).—NATURE OF NERVE ENERGY.—ELECTRO-MOTIVE POWER OF NERVES.—GENERAL FUNCTIONS OF NERVE-CELLS.—FUNCTIONS OF NERVES.—EXPERIMENTAL METHODS FOR INVESTIGATING THE FUNCTIONS OF THE NERVOUS SYSTEM.

Gentlemen,—At our last meeting we busied ourselves with the mensuration of the velocity of nerve energy. I showed you the mode in which this velocity is ascertained in the nerves of the frog, and stated to you the effect of various agents upon it in the nerves of this animal. Ere I pass to the main subject of to-day's demonstration, I shall show you how to measure the velocity in human sensory nerves, selecting for this purpose those of the thigh. We shall estimate the time taken by the nerve energy to pass from the foot to the upper part of the thigh.

[To prevent tediousness, the following account is substituted for this portion of the lecture. Several instruments have been used for the performance of this experiment. Marey's myograph (see Lecture IV.) may be employed. That invented by Helmholtz (see Lecture IV.) is the one which I use. Two pairs of wires, connected with a powerful induction machine, are placed against the skin of the leg; one pair at the foot, the other pair at the upper part of the thigh. At one time the foot, at another time the thigh, is irritated. The individual operated upon takes hold of the movable rod connected with the pin that writes upon the revolving cylinder (see Fig. 9, Lecture IV.), and the moment he feels the irritation he moves the pin, and so makes a mark upon the cylinder. The following figure will indicate the manner in which this experiment is performed:—

Fig. 15.



H, Position of hand. F, Position of foot. T, That of the thigh. The vertical lines indicate nerves connecting the foot and hand with the brain (B). The arrows indicate the direction taken by the nerve influence from the foot or thigh to the brain, and from thence to the muscles of the hand.

The lower nerve-cell in the diagram indicates a cell in the sensory ganglia; the other indicates a cell from which emanates the voluntary motor influence that moves the muscles of the arm and hand. One pair of electrical wires is placed at F, and another pair at T; and the object of the experiment is to ascertain the time taken by the nerve influence to pass from F to T. The cylinder of the machine is thrown into revolution (see Lecture IV.) When it attains a given speed it causes a powerful inductive shock to irritate the foot. The moment the individual feels this he makes a mark upon the cylinder. A known point on the cylinder's surface corresponds to the moment when the irritating shock o-electricity is produced. The amount of a horizontal line on the cylinder's surface which intervenes between this point and the mark made by the hand of the individual indicates the time taken by the nerve influence to pass from F to H. That space of time is noted. The experiment is repeated, but this time the thigh, instead of the foot, is stimulated. The time taken by the nerve influence to pass from T to H being thus ascertained, the difference between the two periods indicates the time taken by the nerve influence to pass from F to T. The length of the portion of the leg between the irritated points F and T is then ascertained. This *approximatively* indicates the length of the sciatic, popliteal, and tibial nerves.]

In our experience we have shown that the rate of transmission in the sensory nerves of the leg is 140 feet per second. Were we to continue the experiment, however, we should probably find that the result varies a good deal even in the same individual. In different persons the result varies still more. Different observers have given results of experiments of this sort which are very discrepant. According to Kohlrausch, the rate is 308·9, Helmholtz gives it at 196·8, Von Wittich at 185·4, and Schelske puts it down at 98·4, feet per second. I have not performed many experiments having reference to this point; but results of those which I have made agree more closely with Von Wittich's than with those of other observers. I will not venture to offer an explanation of those discrepancies; Helmholtz is engaged in an investigation of the point, and we may, of course, expect an important advance in our knowledge of the matter. We may safely say, however, that a very important cause of the variation in the results of such experiments is the variable time taken by the mental processes concerned in issuing the command to the motor nerves of the arm, after having perceived the sensation due to stimulating the nerves of the leg. Scarcely any of us can have failed to observe not only that different persons require very different periods of time to perform even the simplest mental processes, but that we ourselves vary very much from time to time in this respect.

At our last demonstration we saw that in human motor nerves the influence travels at the rate of 111 feet per second, and to-day we have seen that in sensory nerves the rate is 140 feet per second. Possibly some of you have already been struck by the thought that this rate is not anything extraordinary. You could whirl a stone through the air as fast as that. Electricity travels along a wire at the rate of 87,500 *miles* per second. You could send an electrical message to America in as short a time as you take to send a nerve message from your brain to your foot. Again, light travels at the speed of 195,000 miles per second. Compared with these swift messengers, nerve energy is as a snail compared to a racehorse.

Pflüger discovered a curious fact regarding the stimulation of a motor nerve, and the effect which it produces on a muscle. He found that when he stimulated with equal force the sciatic nerve of a frog at one time near the gastrocnemius and at another time at a distance from the muscle, in the latter case a more powerful impression was produced on the muscle. We shall perform the experiment.

FIG. 16.

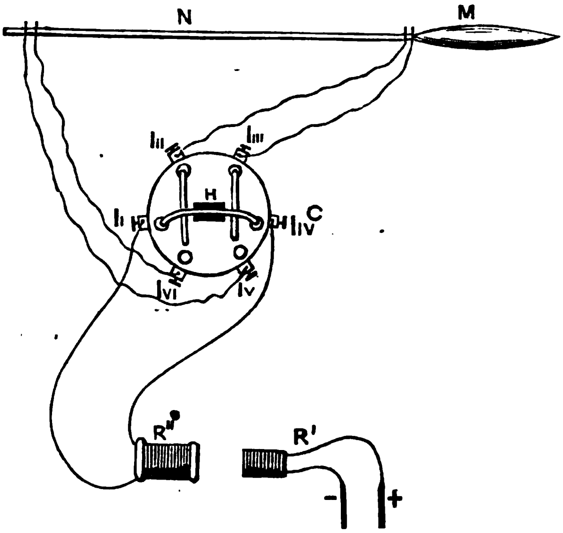


Diagram showing the arrangements necessary for the performance of Pfluger's experiment, described in the text. N, Sciatic nerve of a frog. M, Gastrocnemius. R', Primary coil of induction machine. R'', Secondary coil. C, Commutator, with three pairs of wires attached: one pair to the secondary coil of the induction machine; two pairs placed under the nerve as indicated. H, The bridge of the commutator. (For description of the commutator see Lecture III.)

I dissect out the sciatic nerve of a frog, sever it from the vertebral column, but leave it connected with the leg. I lay the nerve, N (see Fig. 16), upon two pairs of wires connected with a commutator (C). The commutator is, in turn, joined to the secondary coil (R'') of an induction machine. When the bridge of the commutator (H) dips into the holes at l_2 and l_3, the electrical current destined to irritate the nerve is sent through the pair of wires placed in connexion with the nerve close to the muscle. When the bridge is disconnected from these holes and dipped into the holes l_5 and l_6, the current is sent through the wires placed at the part of the nerve farthest away from the muscle. We shall first of all find out the weakest current necessary to irritate the nerve close to the muscle. For this purpose separate the two coils of the induction machine (R' and R'') to the distance of two feet or so. Set the machine in motion.......The muscle is as yet motionless. Approximate the two coils very gradually, and stop the moment you see the slightest twitching of the muscles..........The toes are now moving very slightly. Let us now turn to the bridge of the commutator, so as to send the current through the other pair of wires, and thereby bring about irritation of the distal portion of the nerve.......The muscles of the leg are now contracting much more vigorously. I reverse the position of the bridge, and so irritate again the nerve near the muscle. The movement of the leg is now much diminished. The irritant has all through been of the same strength; how then shall we explain the difference between the results of irritating the nerve near to, and at a distance from, the muscle? Pflüger suggests that the nerve energy, as it passes along the nerve, accumulates power from the particles of the nerve, so that the effect of an irritant is greater the longer the piece of nerve through which the influence produced by it may have to pass. He compares the nerve influence to an avalanche, saying that as it travels along a nerve, its power becomes intensified, just as the avalanche rushes down a precipice with increasing force. Such an explanation seems to me scarcely warranted by the experiment. You will readily understand why. You see that the nerve has been divided near one of the points irritated. Has the division of the nerve had no effect upon the irritability? Rosenthal has shown that when a nerve is cut off from its centre for a time a wave of increased irritability, succeeded by death, very slowly passes from the point of section throughout the nerve. It may be, therefore, that the result of our experiment is simply due to the greater irritability of the nerve near its cut extremity.

NATURE OF NERVE ENERGY.

Some whose opinions are entitled to every respect regard nerve energy as identical with electricity. Perhaps it may at once occur to you that the enormous difference between the velocity of nerve energy and that of electricity is sufficient to show the non-identity of the two forces. The velocity of electricity varies in different conductors, and the velocity with which it can travel through a nerve may therefore be much less than the velocity through a wire. This rapidity is as yet unknown, and therefore we dare not come to a decision regarding this point. It seems to me, however, that the facts which I am about to demonstrate decidedly oppose the idea that these forces are identical. You have seen that if a powerful galvanic current be sent along a nerve, the irritability and conductivity (power of conducting nerve energy) are diminished, and, it may be, even temporarily or permanently abolished. (See Lectures III. and IV.) I take the sciatic nerve and leg of a frog. I pinch the end of the nerve: the muscles contract. Clearly the nerve is at present able to propagate along it the influence produced by my pinch. I now lay that portion of the nerve near the gastrocnemius upon two wires which are the poles of a powerful galvanic battery. We allow the current to flow through the nerve for a few seconds; and now, while the electricity is still passing through the nerve, I pinch it as before. There is no response. The muscle now is unaware of my having irritated the nerve. Why? Because the electricity flowing through the nerve has paralysed it. It is no longer able to conduct nerve energy. Do not for a moment suppose, however, that the nerve can no longer conduct electricity: that is certainly not the case. Why, this very condition of the nerve is being kept up by a current of electricity which is flowing through it.

The influence of other agents which paralyse nerve is also important in this connexion. Let me just mention one of these. You have seen that cold paralyses nerves; but frozen nerves can conduct electricity, although they cannot transmit nerve energy; and, what is more, frozen nerves are better conductors of electricity than those which are not frozen. These facts seem to me sufficient to lead us to regard electricity as something different from the influence which travels through our nerves.

I have hitherto, for convenience, spoken of conduction of nerve energy as if it were a thing which passes through a nerve-fibre as water passes through a tube. Most probably the nerve transmission is not at all like that. The nerve-fibre may be regarded as consisting of a chain of molecules. Some think that when a nerve is irritated these molecules are merely thrown into vibration, and that this vibration passes along the nerve just as, e. g., a vibration passes through this table when I strike it. This vibration may be set agoing by energy generated in a nerve-cell, or otherwise communicated to the nerve. According to this view the conduction of the nervous influence is simply the transmission of a movement from particle to particle along the nerve. Others look upon nerve conduction as much more analogous to the ignition of a train of gun-powder. Apply heat to such a train, and a chemical change, set agoing by the heat, proceeds from particle to particle, each particle undergoing chemical change and liberating energy, which sets up a similar change in the neighboring particle. This view appears to me the more probable of the two; because, as we have seen, a nerve cut out of the body loses its irritability much sooner if it be stimulated than if it be allowed to remain at rest, and the rapidity with which the nerve dies bears a direct relation to the powerfulness of the excitement to which the nerve is subjected. To me this appears to indicate that there is in the nerve a store of energy which may be drawn upon and exhausted by stimulating the nerve. This energy is probably stored up in certain chemical compounds in the nerve-fibre. The case seems to me analogous to that of a muscle. The muscle contains energy apparently stored up in certain chemical coumpounds. When contraction occurs, very appreciable chemical changes take place in the muscle. When it is compelled to energise, these chemical changes bear a direct relation to the amount of the muscular action. The muscle, like the nerve, becomes exhausted at a rate which increases with the amount of work which it is compelled to do; and the action of the nerve and the muscle can be brought about by the same kinds of agents. But while there are points of view from which the case of the nerve closely resembles that of the muscle as regards the source of its energy, it must be admitted that while we have positive evidence of muscular action being accompanied by most appreciable chemical changes in the muscle—e. g., the reaction of the muscle changes from alkaline to acid, oxygen is rapidly absorbed, carbonic acid rapidly exhaled, and so on, —we have no undisputed evidence that any similar changes take place in the nerve. True, Funke and J. Ranke maintain that the reaction of a nerve passes from neutral to acid during nerve work; but, on the other hand, Liebreich and Heidenhain deny that any such change can be demonstrated. We must, therefore, await further inquiry into the chemistry of nerves at rest and nerves in action. The investigation of the subject is attended by much difficulty. It is not, therefore, surprising that as yet so little information has been obtained regarding it.

ELECTRO-MOTIVE POWER OF NERVES.

The particles in *living* nerves have the power of separating the two kinds of electricity, and thus giving to the nerve certain electrical properties which we shall study upon a future day. Meanwhile, let me say that a nerve exhibits electrical properties during both its state of rest and its state of action.

GENERAL FUNCTIONS OF NERVE-CELLS.

It is convenient to regard a nerve-centre as consisting of one or more nerve-cells, although in two great nerve-centres—to wit, the grey matter of the cerebral and cerebellar convolutions—there is a large quantity of a granular plasm existing in a diffused state, and not in the form of cells. Speaking broadly, nerve-cells generate and conduct nerve energy. The liberation of energy is in many instances called forth by the action of nerve-fibres connected with the cell. In other cases the cells *seem* to energise *spontaneously*. It is certainly doubtful to what extent they do this. Possibly many of their actions, which we consider to be spontaneous, are really called forth by influences acting from without. While, however, there is reason for supposing that some nerve-cells may act spontaneously, every fact seems to show that a nerve-fibre does not do this. It does not pass into a state of action of its own accord. It must be prompted by the energy of the nerve-cell, or by some other form of energy. Some nerve-cells appear to exert a trophic or nutrient influence upon the nerve-fibres connected with them. The nerve-cells in the ganglia upon the posterior roots of the spinal nerves seem to exert this influence over the sensory fibres of the spinal nerves, as shown by Waller. When the fibres are cut off from the ganglion, either above or below it, they undergo degeneration.

FUNCTIONS OF NERVES.

One or both extremities of a nerve-fibre seem always to end in a nerve-cell. Nerve energy seems always to pass through nerves in definite directions. Nerves may therefore have been grouped into three classes, named with reference to the direction in which nerve energy passes through them. I. Those which conduct from a nerve centre, named centrifugal, efferent, or excitant. II. Those which conduct to a nerve-centre, named centripetal, afferent, or incident. III. Those which conduct between two centres, named intercentral (Hermann). This classification is by no means perfect, but it is in many respects convenient. The centrifugal class of nerves may be further subdivided into—1. Motor; 2. Secretory; 3. Tropic nerves. The centripetal class into—1. Sensory; 2. Those which cause reflex actions; 3. Inhibitory nerves. The intercentral nerves are chiefly found in the brain, spinal cord and ganglia. Their functions are probably the same as those of the centrifugal and centripetal nerves; that is to say, they may minister to sensation, motion, inhibition, &c.; and in addition to the actions which I have mentioned, some of these intercentral fibres are doubtless concerned in various mental process.

EXPERIMENTAL METHODS FOR ASCERTAINING THE FUNCTIONS OF THE NERVOUS SYSTEM.

The functions of nerves are ascertained by observing what happens when they are paralysed or stimulated. The paralysis of a nerve may result from some diseased condition, or may be brought about artifically by dividing the nerve, tying a thread round it, freezing it, or by the action of various poisons. When investigating the functions of nerve-centres—e. g., the cerebellum—paralysis is sometimes produced by removing the part altogether. We usually stimulate the nerves by electricity, by pinching them, or by applying some chemical irritant directly, or indirectly by introducing it into the circulation.

I shall illustrate what I have been saying by some experiments. We have here a white rabbit. Examine its ears and both pupils, and satisfy yourselves that the one ear is not redder than the other, nor is the one pupil larger than the other. I now cut down upon the cervical sympathetic nerve. Let us take that on the right side for convenience. I expose the nerve about the middle of the neck. I separate it from the superior cardiac branch of the vagus—a smaller nerve which lies close beside the sympathetic, and I put a fine silk ligature round the sympathetic, and tie it firmly round the nerve. The effect of this is to paralyse the nerve as thoroughly as if the nerve were divided. Now compare the two ears and the two pupils again. The vessels in the right ear are much larger than those in the left ear. The right ear is, in consequence, distinctly redder than the left. You also see that the right pupil is smaller than the left one. I shall now divide the nerve immediately below the ligatured point, and then irritate the nerve just above the ligature. In an experiment of this sort, we call this part of the divided nerve its "upper" end; the end of the nerve which lies below the point of section is called the "lower" end. Watch the vessels of the right ear while I faradise (stimulate with faradic on induced electricity) the upper end of the nerve. You see that they contract, and the ear, in consequence, becomes blanched. We shall wait for a few moments until the irritation passes off....... Now look at the right pupil while I irritate the upper end of the nerve again.......You see that it dilates enormously under the influence of the irritation. We have seen, then, that on paralysing the cervical sympathetic, bloodvessels of the ear on that same side dilate, and the pupil of the same side contracts, and that on stimulating the upper or cranial end of the divided nerve precisely the converse takes place in both parts. We therefore conclude that this nerve contains fibres whose function is to cause the vessels of the ear to contract, and the pupil to dilate, and that these fibres convey their influence up the neck. As I want to keep the experiment as simple as possible, I shall not stimulate the lower end of this nerve at present.

I cut down upon the phrenic nerve, and I open the abdomen in order that you may see the diaphragm. You see that at intervals both sides of the diaphragm are drawn downwards. I divide the right phrenic nerve in the neck. Now look at the right side of the diaphragm. It remains quite loose and flabby when the left side is drawn down, instead of being tightly drawn down with it as before. I shall now irritate the lower end of the nerve. Watch the diaphragm. You see that the right half is drawn violently downwards during the irritation, and that the flabby state returns when I stop the irritation of the nerve. We conclude that the right phrenic nerve contains motor fibres for the right half of the diaphragm, and that these influences pass through the nerve down the neck.

I might multiply such examples; but these will, I doubt not, suffice to enable you to understand some points in the method of studying the functions of the nervous system experimentally. Few experiments can be performed on the human subject; but recollect that disease and accident sometimes perform most important experiments for us. Any part of the nervous system may in this way come to be paralysed or stimulated, and we have only to observe the results. In all experiments on the nervous system, whether performed by us or for us, it is particularly important to ascertain precisely the situation and extent of the injury to the nerve-tissue. In the case of the brain and spinal cord this can only be done in most cases by hardening the tissue after death, and then making a careful microscopic examination of it.

Ere I close just permit me to say in this connexion that some knowledge is gained regarding the functions of some parts of the nervous system by comparing their size and development with the functions performed by them in different animals, and in the same animal at different periods of its existence. For example, there appears to be a somewhat direct relation between the amount of grey matter in the convolutions of the cerebrum and the amount of intelligence possessed by different animals, and by the same animal at different ages.

At our next meeting we shall study that which concerns reflex action and inhibitory nerves.

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AN ABSTRACT

OF A

Course of Lectures

ON THE

INTERNAL DISEASES OF THE EYE AS SEEN WITH THE OPHTHALMOSCOPE.

Delivered at the Royal London Ophthalmic Hospital, Moorfields.

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LECTURES III. & IV.

THE OPHTHALMOSCOPIC EXAMINATION OF DISEASED EYES.

The Refracting Media: the Cornea, Crystalline Lens, Vitreous Humour, &c.

Gentlemen,—Before commencing any ophthalmoscopic examination of the fundus oculi, you should always ascertain the condition of the refracting media, both with the oblique illumination and in the erect image. This will prevent your making many an error of diagnosis which might otherwise occur. In examining the lens or vitreous humour, it will be advisable for the beginner to have the patient's pupil widely dilated with atropine, although an expert observer may, even with an undilated pupil, be generally able to detect opacities situated at the margin of the lens, by directing the patient to look far in the opposite direction, which will enable the surgeon to look in a very slanting direction behind the iris.

With the oblique illumination opacities in the refracting media will appear in their true colors; opacities of the lens, for instance, look like grey or white lines or patches on a dark background; whereas in the erect image they will appear as dark spots on a red background, for, as their surfaces reflect but little light, they will be seen in shadow. There is no difficulty in judging of the exact position if the opacity is situated in the cornea, the capsule, or the lens. But in the vitreous humour it is less easy to estimate the depth at which it is placed. This is best decided in the following manner:—The observer, employing the erect image, should look straight into the eye, so that his visual line passes through the turning-point of the patient's eye (which corresponds nearly to the posterior pole of the crystalline lens). Now if the eye under observation is moved about in different directions, the turning-point and the corneal reflection will alone remain stationary. Hence any opacity situated exactly at the turning-point will remain immovable; whereas if it is situated in front of this point it will move in the same direction as the cornea; if behind it, in a direction opposite to that of the cornea. The further the opacity lies from the cornea, the greater will this movement be. If the object lies deep in the vitreous, just in front of the retina, the surgeon should examine the eye in the reverse image, and on slightly moving the object-lens from side to side he will notice that the further the object is from the retina, the more marked will be its movement in the same direction as that of the lens.

The cornea is best examined with the oblique illumination, especially for determining the exact situation, size, and nature of foreign bodies, ulcers, or opacities. A second lens, or even a microscope, may be used for the purpose of magnifying.

Conical cornea may easily be recognised without any aid, if it be considerable in degree; for, on looking at it from the front, the centre of the cornea will appear unusually glistening and bright, as if a little tear-drop were suspended from it. The shape and size of the conicity become still more apparent on regarding the cornea in profile; but in the erect image even slight degrees of the affection may be at once detected. For on illuminating the cone we receive a red reflection from the apex, which gradually becomes shaded off and darker towards the base; so that the central bright spot is surrounded by a dark zone, which is again encircled by a red ring. If we throw the light at different angles on the centre of the cone, that side of it which is opposite to the light will be darkened. On examining the fundus in the reverse image, a considerable parallax is noticed; for, on moving the object-lens to and fro, certain portions of the disc and of the vessels upon it will be displaced and distorted, whilst others remain unchanged.

The anterior chamber and iris.—Deposits of lymph, effusions of blood, or foreign bodies in the anterior chamber are best seen with the oblique illumination. The same is the case with morbid changes in the tissue of the iris, or deposits of lymph at the edge or into the area of the pupil. Whereas the examination in the erect image will be found very useful in detecting any gaps in the iris, or any detachment of the latter from its ciliary insertion; for in such cases we shall obtain through the gap a bright-red reflex from the fundus, it being taken for granted of course that the media behind are transparent.

The crystalline lens.—A fully-formed, mature cataract is readily distinguished with the naked eye as a whitish, opalescent body in the area of the pupil; but it is different with incipient cataract, especially if it be but slight in degree and confined to the margin of the lens. Both the soft and hard variety of cataract generally commence at the periphery. In *incipient cortical* (soft) *cataract* we notice, in the erect image, dark, well-defined stripes intersecting the red fundus, and radiating from the periphery to the centre; between them there are generally smaller stunted stripes, or little opaque patches. The interjacent lens-substance is at first transparent, but gradually the cloudiness becomes more general and diffuse. With the oblique illumination the opacities assume a greyish-white tint, the stripes being broad, white, and often opalescent; but there is no yellow reflex, and this is of importance, as proving the absence of a more or less hard nucleus. In *fluid cataract* the opacity is homogeneous, of a milky-white or dirty-grey color, and reaches quite up to the anterior capsule; and there are no opalescent stripes. The *nuclear or hard senile cataract* is met with after the age of thirty-five or forty, and, as a rule, also begins at the margin in the form of small narrow stripes and spots; the opacity gradually increases and assumes towards the centre a yellowish color, which indicates the presence of a hardish nucleus. The larger the area yielding this tint, and the darker the color, the larger and harder is the nucleus. If the opacity commences at the posterior pole of the lens, the general condition of the eye must be carefully examined—viz., the sight, the field of vision, the eye-tension, and the ophthalmoscopic appearances of the fundus, if the latter be still visible, for this form of cataract (posterior polar cataract) not unfrequently occurs in the later stages of certain affections of the choroid and retina.

Lamellar cataract.—It is very important, in a practical point of view, to recognise this form, as it is often best treated by the formation of an artificial pupil, without any interference with the lens itself. On dilating the pupil with atropine, and examining the lens in the erect image, a circular, uniform, dark opacity (from two to two and a half lines in diameter) will be noticed in the central portion of the lens, surrounded by a more or less clear red zone. The cataract, in fact, consists of a layer of opaque lens-substance lying between the transparent nucleus and a clear portion of the cortical substance. With the oblique illumination the opacity appears of a uniform light-grey tint, sharply defined, and surrounded by a margin of lens-substance, which may be either quite transparent or is here and there studded with small opacities. If this marginal zone is sufficiently clear and broad to permit of good sight when the pupil is widely dilated with atropine, an artificial pupil should be made so as to enable the patient to see through this clear portion, and the lens itself is not to be operated on.

Capsular opacities.—The anterior capsule of the lens is often the seat of deposits of lymph due to iritis. These may be confined to the edge of the pupil, leaving the central area free; or the latter may be covered by a more or less thick film, or blocked up by a dense nodule of lymph. Again, after an operation for cataract, the pupil may be occluded by portions of wrinkled opaque capsule, enveloping perhaps remnants of cataractous lens-substance. *Capsular cataract* is distinguished by its white chalky appearance. Strictly speaking, the term is incorrect; for, though the capsule may be thickened and wrinkled, it remains transparent, the opacities being due to deposits on its inner surface. In irido-choroiditis, there is often great proliferation of the intra-capsular cells, subsequently perhaps undergoing fatty and chalky degeneration, which also extends to the lens. *Anterior central capsular cataract* consists of a small opacity occupying the centre of the pupil. When it is very prominent and elevated above the level of the capsule, it is termed pyramidal cataract. It may be congenital, but is more frequently formed in early childhood, in consequence of a perforating ulcer of the cornea.

In cases in which it is doubtful whether or not the crystalline lens is present, and if neither the oblique illumination nor the ophthalmoscope enable you to arrive at an exact conclusion, the *catoptric test* must be employed. This test depends upon the three images which may be observed in a normal eye when a lighted taper is moved before it. Two of these images are erect; the third is inverted. The erect images are produced by reflection from the surface of the cornea and the anterior surface of the lens; the inverted one by the concave posterior surface of the lens. The first two move in the same direction as the candle; the last in the opposite. Now, if the lens is absent from the pupillary area, the lenticular reflections are of course wanting. Moreover, the normal eye will in such a case be extremely hypermetropic. If the lens has been dislocated into the vitreous humour, its situation can be easily recognised in the erect image, for it will appear as a dark lenticular body lying in the lower or lateral portion of the vitreous. If there is only partial displacement of the lens, and not a complete dislocation, its free edge will be noticed as a dark, sharply defined curved line, traversing the red fundus, and forming the outline of the transparent or opaque lenticular disc.

Diseases of the Vitreous Humour.

Inflammation of the vitreous humour (hyalitis) is, as a rule, a secondary affection, supervening upon inflammation of the retina, choroid, &c. But it appears more than probable that it may also occur idiopathically, and without any perceptible participation of the other tunics of the eye.* The progress of hyalitis is best studied when a foreign body (e. g., chip of steel) becomes lodged in the vitreous; for, with the ophthalmoscope, we generally find that the vitreous in the vicinity of the foreign body soon becomes hazy, and the latter surrounded by a greyish veil, which increases in density and thickness the more connective tissue is developed, and assumes a yellow tint if suppuration sets in. In *simple hyalitis* the vitreous is diffusely clouded, the details of the fundus hidden by a grey film, and the sight greatly affected. There are also dark membranous or thread-like films, which are either fixed, or float about when the eye is moved. In the *suppurative* form a creamy yellow reflex is often noticed from the anterior portion of the vitreous, which becomes very apparent with the oblique illumination.

Opacities of the vitreous are best observed in the erect image, the patient being directed to move his eye quickly and repeatedly in various directions, which will cause the opacities to be shaken up and float about. The opacity may be diffuse and extend over the whole fundus, or it may be chiefly confined to the centre, whilst the details of the fundus are distinctly visible at the periphery. But together with the diffuse opacity we generally observe dark, membranous, filiform or reticulated opacities, which are either fixed or floating, and which may be due to blood-effusions, to pathological changes in the vitreous cells, or to the formation of connective-tissue elements. To the patient they appear as dark cobwebby spots or flakes, being the more observable the nearer they are to the retina. They occur most frequently in inflammation of the choroid and ciliary body, and especially in sclerectasia posterior. Not unfrequently the opacities of the vitreous are the first symptoms of inflammation of the choroid; and it is not till a later stage, when the vitreous has again become transparent, that the (perhaps slight) inflammatory changes of the choroid are detected. I have often observed this in cases in which the disease was dependent upon syphilis. Effusions of blood into the vitreous frequently cause these opacities, which then yield a peculiar bright-red reflex. But if the hæmorrhage is very extensive and diffuse, it may be impossible to illuminate the fundus, and it yields no reflex, but looks quite dark. The chief danger of hæmorrhage into the vitreous lies in the fact that it is apt to recur again and again, and may thus lead to detachment of the retina, glaucomatous complications, or atrophy of the eye-ball. In the treatment of vitreous opacities we must be chiefly guided by the cause, and by the fact whether they are due to inflammatory affections of the deeper tunics of the eye or to blood-effusions. In cases in which the opacities depended upon insidious choroiditis or irido-choroiditis (especially syphilitic), I have often derived very marked benefit from mercurial inunction, combined with the application of the artificial leech to the temple. The latter remedy especially accelerates the absorption of the opacities by preventing and relieving congestion of the choroidal and retinal circulation. If the patient is weak, dry-cupping may be substituted.

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* This has, however, been recently denied by Dr. Hermann Pagenstecher, whose interesting experiments have led him to the conclusion that the vitreous cannot undergo primary inflammation. (Vide Knapp's Archiv fur Ophthalmologie and Otologie, i. 2.)

I must here point out to you the importance of distinguishing between these pathological opacities of the vitreous and the subjective physiological muscæ volitantes, which everyone sees more or less, and which are met with in perfectly healthy eyes. They appear to the patient as small transparent discs or vesicles, which are arranged in groups or strung together like a row of bright beads, and float about the visual field, being especially observable when he regards a very highly illuminated object—as, for instance, the bright sky. These muscæ are generally due to extremely minute beaded filaments or groups of granules in the vitreous, and are so small as to be quite invisible with the ophthalmoscope. Hence this instrument is of great practical value in enabling us to distinguish between the physiological and pathological muscæ, for as soon as they are apparent with the ophthalmoscope we must regard them as due to some pathological changes in the vitreous. On the other hand, we can greatly relieve the patient's anxiety if we are able positively to assure him that the muscæ are simply physiological, and of no consequence.

Fluidity of the vitreous (*synchysis*) may be confined to a part of the vitreous chamber or involve the whole. This condition can only be diagnosed when there are floating opacities in the vitreous, for the symptoms which are sometimes stated to be indicative of it (I mean diminished eye-tension and tremulousness of the iris) are of no diagnostic value; for the eyeball may be stony hard and yet the vitreous be fluid, and tremulousness of the iris only occurs when the latter has more or less lost the support of the lens. If cholesterine crystals exist in the fluid vitreous, a most striking appearance is observed with the ophthalmoscope, for on moving the eye a shower of bright sparkling crystals floats through the field.

Detachment of the vitreous occurs sometimes, and is a condition of much importance, to which special attention has lately been directed by the researches of Iwanoff.* It is generally due to some injury of the eye; but it is also met with in staphyloma of the cornea, sclerectasia posterior, and after operations for the removal of cataract, especially if vitreous has been lost. Now the latter is a fact of much practical importance; for it should make us anxious and careful to avoid, if possible, any loss of vitreous in extraction of cataract, an accident to which many operators still attach but too little importance. For there is no doubt that eyes in which vitreous has been lost are prone to an insidious chronic form of choroiditis, and are far less likely to prove permanently serviceable than if this has not occurred. And if, besides this, they are liable to detachment of the vitreous, this must be regarded as a very dangerous complication, as it is very apt to be followed by detachment of the retina. The ophthalmoscopic symptoms of detachment of the vitreous are still uncertain; but it is probable, according to von Graefe, that the sudden, sharply defined, and tolerably uniform opacity in the posterior segment of the vitreous, which sometimes occurs in sclerectasia posterior, and is almost constantly followed by detachment of the retina, is a detachment of the vitreous.

Foreign bodies in the vitreous but too often excite very severe inflammation of the eye, leading perhaps to atrophy of the globe. If the refracting media are clear enough, we find with the ophthalmoscope that the foreign body generally soon becomes surrounded by a delicate greyish-blue film which gradually increases in density, and assumes a more yellowish-white tint, encapsuling and hiding the foreign body from view. In very rare cases this enveloping membrane is so transparent that the foreign body can be seen without it.

Cysticerci in the vitreous humour are of extremely rare occurrence in England, whereas in Germany they are not very uncommon. The entozoon generally lies at first beneath the retina, which it subsequently perforates, and enters the vitreous. It may, however, carry the retina with it, and thus cause a very extensive detachment of the latter. If the cysticercus lies free in the vitreous, it appears with the ophthalmoscope as a pale, greyish-blue, circular vesicle, having a short neck and round head, on which the suckers are observed. If it be alive its outline may be seen to undergo slight undulating movements, the head being alternately stretched out and retracted into the receptaculum. On strongly illuminating the vesicle, its surface affords a peculiarly bright iridescence.

In very rare instances new plastic formations of connective tissue are observed in the vitreous Ophthalmoscopically, they appear as smooth or somewhat striped, pale, yellowish-white, membraneous masses, a few small bloodvessels, perhaps, coursing over their surface; but they are quite free from the nodulated elevations observed in glioma retinæ. This condition is well illustrated in the right eye of the patient you saw this evening.

Persistent hyaloid artery.—You are aware that the hyaloid artery, which runs in the fœtus from the optic nerve to the posterior pole of the lens, shrivels up and disappears during the later months of fœtal life; but very exceptionally remains of it can subsequently be traced in the vitreous with the ophthalmoscope, as a dark stripe or line running from the disc towards the posterior pole of the lens. If the vessel is still wholly or partially patent, and carries blood, it appears red by incident light. The case of persistent hyaloid artery and vein which I have shown you to-night is, as far as I am aware, unique, from the fact that not only both artery and vein are persistent, but that the artery appears at the anterior extremity to pass directly over into the vein, the two vessels together being several times twisted round each other, somewhat like those of the umbilical cord.

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* Graefe's Archiv fur Ophthalmologie, xv., 2.

Original Papers.

ON THE

SO-CALLED "BONE-SETTING," ITS NATURE AND RESULTS.

By Wharton Hood, M.D., M.R.C.S.

(Concluded from June No.—p. 310.)

In the rupture of adhesions by manipulation, the first principles by which the operator should be guided are—to obtain sufficient firmness of grasp, sufficient leverage to apply the necessary force suddenly, and to apply it generally, in the first instance, in the direction of flexion, before any attempt is made to restore other movements. In their application to individual joints, these principles require certain modifications of detail, to each of which attention may next be directed.

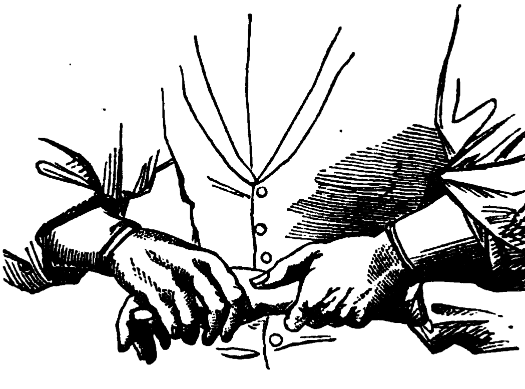
The thumb and fingers frequently require to be made the subjects of treatment. Their several articulations, and especially those of the thumb, are much exposed to injuries (e. g., by a blow from a cricket ball, or in efforts to save oneself from falling), and these injuries are often treated by rest. When the thumb is the part injured, and surgical advice is sought, it is not uncommon for a splint to be put on and for iodine to be applied externally as soon as inflammatory symptoms have subsided. Sometimes, however, the rest is merely in obedience to the instincts of the patient; but, in whatever way produced, it will, in a certain proportion of cases, be followed by painful restriction of mobility. In such cases the mode of procedure is as follows:

Supposing that an articulation between two phalanges is the one affected, the operator grasps the proximal phalanx firmly between the forefinger and thumb of his left hand, placing the second phalanx of his forefinger on the palmar aspect of the patient's finger, and directly transverse in relation to it, and his thumb on the dorsal aspect. In this position the forefinger of the operator furnishes a steady fulcrum. The phalanx on the distal side of the joint is then grasped by the forefinger and thumb of the right hand, and the joint is sharply flexed to the full extent that the fulcrum finger will allow. It is then with a continuous movement brought back to a state of half flexion, and in that position is abducted, and then adducted, to the limited natural extent of these movements in a healthy joint. It is then straightened, and the momentary operation is complete. The patient, in a properly selected case, will immediately be able to flex and extend the joint without pain, and must be encouraged to bring it into moderate use immediately. It is quite plain that to keep it still at rest, or to put it upon a splint, would be to allow the adhesions to reunite, and all the former troubles to be restored.

The metacarpo-phalangeal articulations are treated precisely as the phalangeal, with the single difference that the larger size of the proximal bone enables the operator to grasp it with the tips of two fingers on the palmar aspect, while its relation to its fellows renders the forefinger unavailable as a transverse fulcrum. The natural movements of abduction and adduction are also more extensive. In some cases Mr. Hutton would place his left thumb on the palmar aspect of the head of the metacarpal bone implicated, steadying the whole metacarpus with his fingers, and would then push over the finger to extreme flexion, by placing his right thumb on the dorsal aspect of the first phalanx, and employing the necessary force. In these small joints the practice of exerting thumb pressure upon a painful spot is not generally available, as the painful spot is not always present. Indeed, it seems likely that the arrest of mobility may often be due to effusions in the sheaths of the tendons rather than to changes in the structures which compose the joint.

Proceeding to the wrist, however, the thumb pressure becomes important; and here it probably enables the operator to fix the proximal attachment of an adhesion. The manner of manipulating is displayed in Fig. 1. The operator, as here shown, standing by the side of the patient, whose hand and forearm are prone, grasps the carpal extremities of the radius and ulna firmly with the left hand, and places his thumb upon the tender spot. He then encloses the thumb and metacarpus in the right hand, exerts steady traction, impresses slight rotation upon the hand by turning one of its margins downwards while the radius is kept fixed, presses very firmly with his left thumb, sharply flexes the wrist-joint to the full extent, and as sharply brings the hand up again to complete ex-

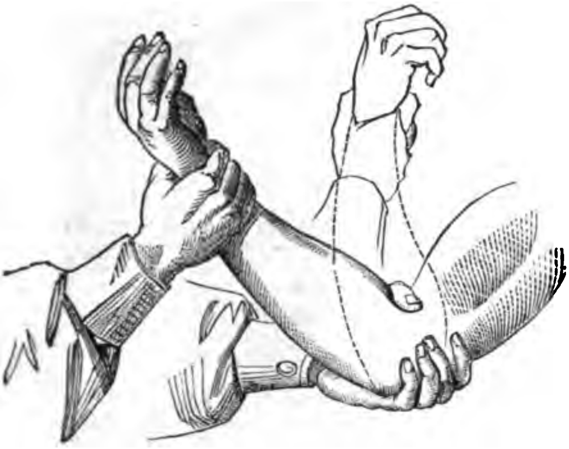
Fig. 1.



tension; the forearm having been all the while immovable.

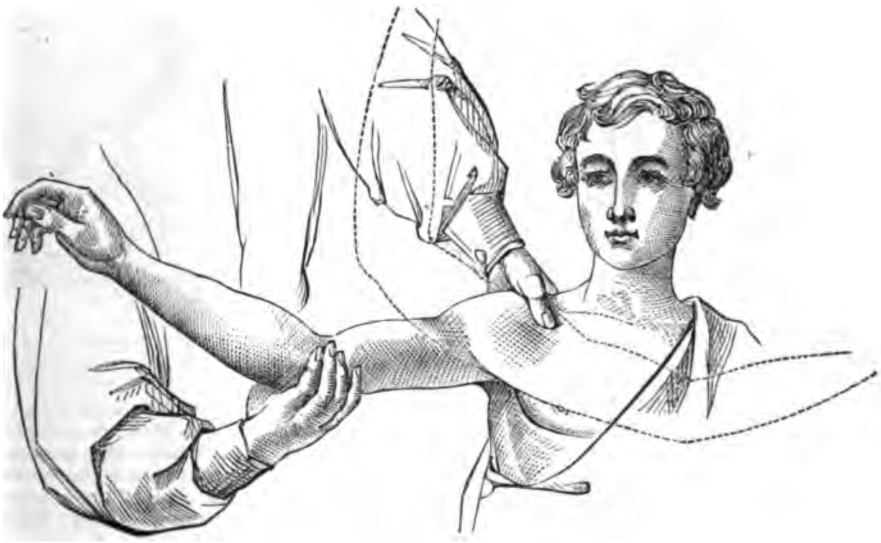
In this manœuvre the importance of the thumb pressure is manifest; for, as the proximal attachment of an adhesion may be to one of the bones of the carpus, it would be quite possible that the bone itself, unless supported from without, might be dislocated from its position by the force employed. With the aid of pressure, however, such an accident could hardly happen, and the adventitious structure is compelled to yield.

FIG. 2.



In the case of the elbow-joint, the first care of the operator is to discover in what direction movement is most painful. For this purpose, the arm and forearm being each firmly grasped, he makes an effort at flexion with the hand carried towards the median line, and again with it carried outwards in the opposite direction. He inquires which movement is most painful, and where the pain is felt. The operator and patient then seat themselves with the corner of a table between them, and the operator, placing the back of his left hand on the table, receives the elbow-joint in his palm and grasps it firmly, as shown in Fig. 2, at the same time placing the left thumb steadily on the seat of pain. He then grasps the wrist with his right hand. If the most painful movement was flexion with adduction, he twists the palm of the hand towards the median line and flexes the elbow sharply, at the same time bringing the hand across the chest. If flexion with abduction was most painful, the palm is twisted outwards, and the forearm carried into the position marked by dotted lines in the figure. In many cases both these manœuvres would be performed, the thumb pressure being shifted to the spot especially painful in relation to each; and, lastly, complete extension and rotation would be made. The table on which the left hand of the operator should rest has been accidentally omitted in the drawing.

FIG. 3.



For the shoulder, the principle of action is entirely the same; and the relative positions of operator and patient are shown in Fig. 3, which also very well illustrates the most usual points for thumb pressure. The dotted lines show the positions into which Mr. Hutton was accustomed to move the arm, frequently in quick succession, but always first in the direction in which movement was most painful.

In executing these various manipulations, the chief thing necessary is for the operator to have confidence, and to exert sharply and instantaneously the full leverage given to him by the limbs. If he attempt to move them slowly he will probably, in many cases, stop short of going good—that is to say, of rupturing adhesions; being deterred either by the resistance that he feels or by the pain complained of by the patient.

It needs no demonstration that a timid operator may easily do mischief by traction upon a joint, which, after all, he fails to relieve, when a bolder and more rapid movement would at once have set the patient free. I am disposed to think that much of the fear of articular inflammation entertained by surgeons is based, if upon any clinical facts at all, almost entirely upon the results of passive motion of an inefficient kind; sufficient to increase the hurtful traction of an adhesion, but at the same time insufficient for its destruction.

In a few cases Mr. Hutton was consulted on account of stiffness about the neck or cervical vertebræ; and he then was accustomed to straighten them in the following way:—His left forearm would be placed under the lowered chin of the patient, with the hand coming round to the base of the occipital bone. The right thumb would then be placed on any painful spot on the cervical spine, and the chin suddenly elevated as much as seemed to be required. As far as my observation extends, the instances of this kind are not *bonâ-fide* examples of adhesion, but generally such as might be attributed to slight muscular rigidity, or even to some form of imaginary malady. The benefit gained was probably rather due to the pain of the operation, and the effect produced by it upon the mind of the patient, than to any actual change in the physical conditions concerned.

The rest of this paper will be devoted to an account of the methods of manipulating the lower extremities.

Fig. 4.

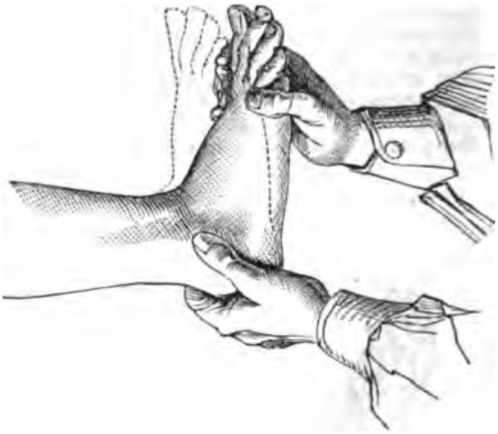
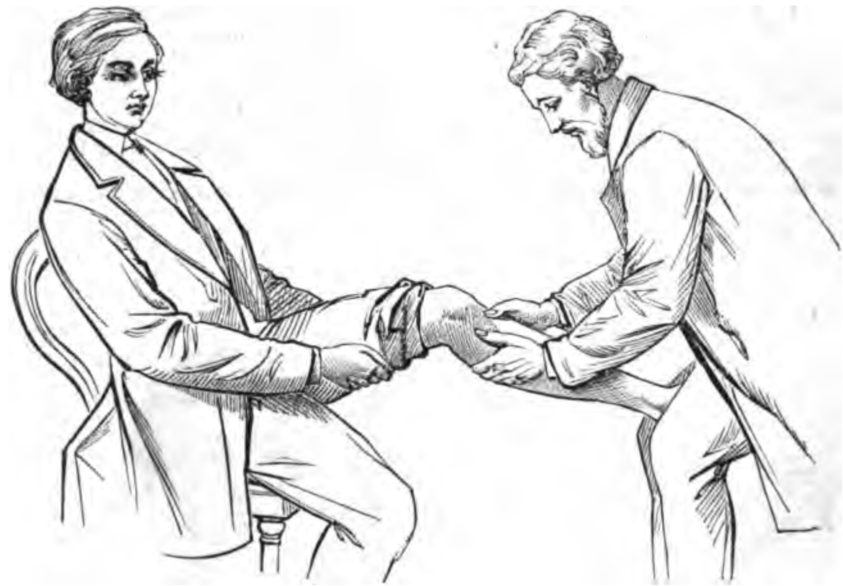


Fig. 5.

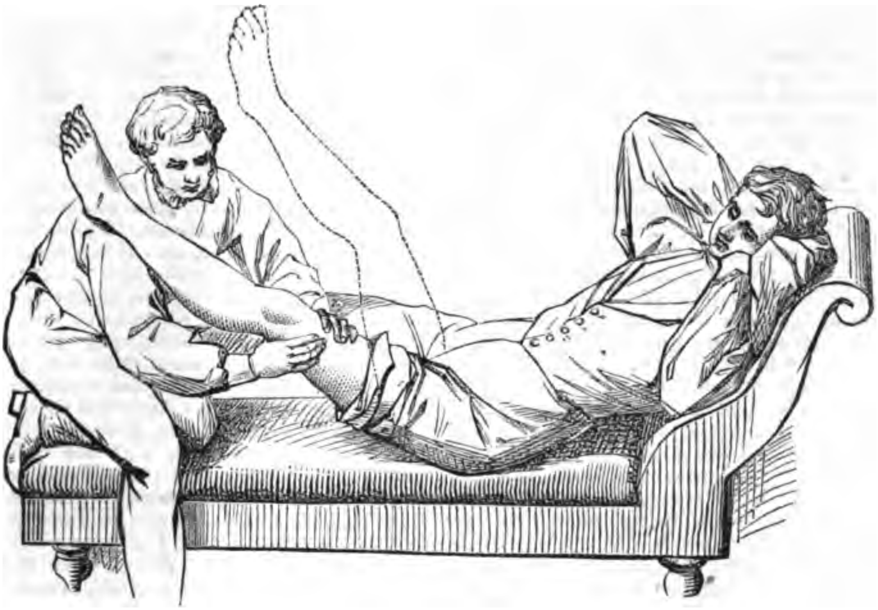


Proceeding next to the consideration of the adhesions about the ankle-joint or foot, the method grasping the limb for rupturing them is shown in Fig. 4, which seems hardly to need an kind of explanation. The proximal side of the affected joint being firmly held, and the thumb pressure made in the ordinary way, the tarsus is so grasped as to give the greatest attainable leverage, the foot twisted a little inwards or outwards, then sharply bent up upon the leg, and again straightened. As a rule, it is desirable to execute this manœuvre twice—once with an inward, and once with an outward twist; and also to take care that the movements of the joint are free in all directions. In order to secure this freedom the shortness of the lever renders it especially necessary that the movements should be quick, or almost sudden, in their character, so that they may the more certainly rupture, and not stretch, any adventitious impediment to motion.

The method of bending the knee-joint is shown in Fig. 5, and requires rather more assistance from description. In the first place the operator grasps the heel of the patient between his knees, the inner condyles resting on the sides of the calcaneum below the malleoli, and receives the foot between the adductor muscles of the thighs, so as to grasp its whole length. In this position the foot serves as a lever by which to rotate the leg, almost without assistance from the hands, which grasp it just below the knee-joint, and with a thumb, as usual, upon the painful spot. The operator then rotates the leg by a lateral movement of his thighs, and the next instant flexes it by a consentaneous movement of thighs and hands together. It is manifest that this movement can only carry flexion to a certain point, and, as soon as this limit is reached, the operator relinquishes his original grasp, places his right forearm (near the wrist) under the knee as a fulcrum, grasps the leg near the ankle with the left hand, and flexes it to the full extent. The first part of the procedure will serve to overcome the most important resistance; while the last completes the liberation thus commenced.

In dealing with the hip-joint, the leverage afforded by the length of the limb was used by Mr. Hutton with great ingenuity, and in the manner shown in Fig. 6. The twist being given by the grasp of the operator's hands, the flexion was accomplished, and with almost irresistible force, by raising his body so as to bring the patient's limb into the position of the dotted lines. When this position is reached, the right or left hand, according to the limb, is shifted down so as to make pressure upon any painful spot in the groin while the flexion is completed. In this way the pelvis of the patient is fixed to the couch; and any tilting of his body upwards is prevented. As with other joints, the twist was made in the direction in which it was most painful; and if the limb was elongated, it was carried outwards from the median line—if shortened, inwards, during the act of flexion.

FIG. 6.



These methods of dealing with the knee- and hip-joints serve very well to illustrate what I have already said about the ingenuity of the means by which all mechanical or instrumental aids were dispensed with.

In Mr. Brodhurst's recent admirable work upon deformities, at pages 139 and 141 respectively, there are drawings of the contrivances to which he has had recourse, in cases of false anchylosis of the knee- and hip-joints; but although such instruments may sometimes be necessary, I think the methods I have described would be sufficient in nearly all cases, and that, whenever sufficient, they would be preferable. They enable the operator to exert as great a degree of force as would usually be either justifiable or necessary; and to exert it under the constant guidance of muscular sense and consciousness, so that, whatever might happen in the hands of an ignorant person, it ought to be absolutely impossible for a surgeon to inflict any injury upon normal structures. There are also the incidental, if minor, advantages of being independent of any instruments but those with which we are all furnished by nature; so that the patient is saved the loss of time and the cost incidental to the construction of an apparatus, as well as the disquietude of mind likely to be produced by its somewhat formidable aspect when complete.

In the case of all the larger joints it was Mr. Hutton's practice to have them rubbed twice a day with neats'-foot oil, and kept constantly enveloped in linseed-meal poultices for a week before, and for some days after, operating, and in many instances he had the joint steeped in water as hot as it could be borne for half an hour before commencing his manipulations. He believed that by these means he diminished the resistance of the muscles, and the risk of subsequent inflammation. So many of his acts and precautions were based upon the results of his large experience, that it would perhaps be hasty to infer that this practice would have been as well dispensed with. Mr. Hutton was a shrewd and observant man, and the poulticing covered an interval of time during which there were many risks of his losing his patient. I do not think he would have adhered to the custom unless he had seen reason to believe that he would incur danger by abandoning it. At all events it amused and satisfied the patient, and gave an air of deliberateness to the manipulation eventually practised for his cure.

Among the symptoms which Mr. Hutton was wont to remark as evidence of a bone being "out" (that is, as evidence of the existence of a state of things in which he could do good) in the shoulder or hip, was the occurrence of acute pain in or near the joint on awakening, so that the patient, if a child, would wake up crying. I presume that in these cases the joint would be moved so freely in the half-conscious period between sleeping and waking as to excite the pain in this manner.

The hip, from its liability to articular disease of a destructive character, from the insidious nature of the symptoms by which such disease is sometimes ushered in, and from the way in which the joint is covered by superincumbent structures, seems likely to be a portion of the body with which it would be particularly dangerous for an uninstructed person to deal. I could not help thinking that Mr. Hutton must have learnt this lesson by experience, for he was not only extremely careful in his examination of the hip, but also seemed, as it appeared to me, by no means sorry when he found reason for letting it alone.

I saw with him one instance in which I thought he had a lucky escape, and which I could not understand at the time; but since the publication by Mr. Teale of his cases of simulation of hip-joint disease by suppuration of the bursa over the trochanter major,* I imagine that such a condition may have been the cause of my perplexity. The following is an outline of the case: A boy had been kicked on one hip by a pony, and the injury produced symptoms resembling those of morbus coxæ, for which the boy was treated. At length he was brought to Mr. Hutton, who said the hip was "out" and operated in his usual manner. The boy had great and increased pain afterwards, and was ordered to apply poultices. In five days his friends sent word that he was much worse, and that a great quantity of matter had been discharged. I anticipated the worst possible issue to the case, and supposed that the movements must have done great mischief; but a month afterwards I met the boy walking in the street, in good health, free from pain, and with a scarcely perceptible limp.

Mr. Hutton entertained a very firm belief that in all cases of hip disease the origin of the mischief was a fall or blow on the part, and this conviction was never shaken by the absence of such an incident from the history related by the patient or his friends. He maintained, and doubtless with much truth, that blows and falls were often unknown to parents, and were soon forgotten, not only by children, but, if attended by no immediate ill results, also by children of a larger growth. The hip cases in which he was useful were probably those in which, after injury, the limb had been kept voluntarily at rest for fear of exciting pain, or in which some inflammatory mischief had existed external to the joint, and had kept all the parts in a state of unnatural quiescence. A test to which he attached importance, and which points clearly to extra-articular as distinguished from intra-articular mischief, was that, in the absence of pain from direct pressure or shocks upon the heel, pain was still felt if the patient rested the heel firmly on the ground, and then, keeping it fixed as a pivot, attempted to rotate the foot inwards or outwards. A sign of similar import was the production of pain on stooping forwards.

On looking back over the whole question, it seems to me that the interest of the methods adopted by bonesetters rests chiefly upon the light it throws upon the means by which any necessity for such methods may be avoided. It appears to teach that there are cases, even classes of cases, very commonly treated by enforced or permitted rest, and in which the rest may easily be carried so far as to be prejudicial. In all forms of inflammation near but external to a joint, in the neighborhood of fractures, and in ordinary sprains, it is certain that organisable material is likely to be effused among the tissues, and to become more or less firm and rigid. It probably often happens that inflammation around a joint is mistaken for inflammation within it; but if the attention of practitioners were once directed to the possibility of such an error, there would hardly be any case in which it might not be avoided by careful analysis of the existing symptoms. After the papers by Mr. Teale and Dr. Macnab, to which I have already referred, no surgeon should in future be misled by cases such as those to which they relate; and the hip is not the only joint liable to become fixed by muscular contraction and other changes in consequence of inflammation of a bursa in its vicinity.

In these instances of external mischief, as well as in the not uncommon event of a portion of the capsule or synovial membrane of a joint being painfully nipped between the ends of bones, the surgeon should seek to eliminate the idea of intra-articular disease; and, having done so, should aid, by the use of careful external support, the moderate resumption of ordinary movements. In the treatment of fracture too much pains can hardly be taken to commence early passive motion of the articulations of the affected limb, and on no account to dismiss as cured a patient in whom this precaution has been neglected, with the wholly unfounded expectation that the stiffness will cure itself. Of late years, especially in fractures of the forearm, I have made it a rule to move the joints frequently from the very beginning of the treatment, taking the thumb, fingers, wrist and elbow seriatim, and of course carefully steadying the fractured bones during the time.

With regard to sprains, and especially to the most troublesome of them all, sprains of the ankle, the treatment long practised and advocated by my father, Dr. Peter Hood,* will meet the whole difficulty. It consists essentially in the careful application of strapping to the injured part, and in the immediate but cautious use of the limb.

I cannot conclude this paper without expressing my appreciation of the generous support given, by the profession at large, to my humble endeavor to bring some spoils to the profession out of the camp of the Philistines.

What I have written has, I am well aware, excited much comment in certain circles; and some blame has even been cast upon me, not only for having, as I conceived, rendered justice to Mr. Hutton's personal character, but also on the score that I had unduly magnified his successes, and omitted to mention the harm that I am told he did. My critics should remember that I saw his practice for a comparatively short time only, at a period when his matured experience had probably taught him to avoid, as a rule, the cases in which his movements would be hurtful. They should also remember the natural tendency of patients who have received harm to go elsewhere. At any rate, from one or both of these causes, little or no injury to his people fell under my notice; and the results of his treatment, when not beneficial, were generally negative. But even if this had not been so, I should have considered the harm as being of no importance to us,—as being the natural result of a want of knowledge of anatomy and pathology, easy to be avoided when such knowledge has been gained. In fact, however, I was astonished, and often no less mortified, at the number and variety of instances in which the manipulations I have endeavored to describe were followed by almost immediate cure.

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* *Vide* The Lancet, January Number, 1871.

* "On the Treatment of Sprained Ankle." Churchill. 1868.

It is a simple fact, and one that should be taken into account by any who would estimate the loss to the profession, both in money and reputation, consequent upon the neglect of any truths that there may be in what I have written, that Mr. Hutton was consulted by more than a thousand persons every year; and that nearly all of these had been previously under medical treatment.

Upper Berkeley-street, Feb. 1871.

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REMARKS

ON THE GUNSHOT WOUNDS OF THE WAR, THEIR NATURE, AND THE TREATMENT ADOPTED IN THE FIELD HOSPITALS.

By SANDFORD MOORE, B.A.,

Assistant-Surgeon 4th Dragoon Guards.

As I had the honor of being selected by the Director-General of the Army Medical Department to accompany the ambulance equipped and despatched to France in October last by the Society for Aid to the Sick and Wounded in War, and as I remained with it in the Prussian lines from that time until the end of the war, the following remarks, which I select from my notes, may be found worthy of a place in THE LANCET.

I had opportunities of seeing wounded, not alone in what one might call the permanent hospitals, as at Versailles, Orleans, Chartres, and other towns, but also (since the ambulance accompanied the ambulance column of the Prussians) immediately after the wounds were inflicted on the field. Amongst this number I have seen but one sabre wound; the remainder have been caused either by bullets or shells, or by objects set in motion by these, such as splinters of wood. I have not seen a bayonet wound.

The shell wounds have varied in every degree of severity, from proving instantly fatal to one or more men to the mere flesh scratch. The bullet wounds, no less fatal, demanded the surgeon's attention not alone from the injury inflicted on the parts, but from the eccentric course sometimes taken by the ball. One bullet dropped down a man's trowsers and fell into his boot, having previously passed through both thighs, scrotum, and prepuce, making in all eight wounds caused by this one ball. Another I have seen where the ball lodged in and was subsequently extracted from the right iliac region, having before this passed through the left elbow-joint and across the abdomen. And a third exemplifying the erratic passage of the ball: A soldier received a bullet wound of the left thigh; and this was the only one which could be discovered about this extremity, or, in short, his only wound; nevertheless, a bullet was found lodged in his right thigh, a short way above his knee, and was subsequently extracted. Where was the wound of entrance? I presume it was on the opposite thigh, and the ball must then have travelled round by the pelvis to where it was found lodged.

I have seen but one wound said to be the result of an explosive bullet, and this was most probably a shell wound. The man was a Prussian soldier. The lower maxilla, integument, tongue (all but the root), and muscles had been torn away.

On the whole, wounds of the lower extremity have been more frequent than those of the upper; this has resulted, no doubt, from the long ranges at which the firing took place. Both chassepôt and Prussian and Bavarian bullets split the shafts of the long bones alike. At the commencement of the war it was considered that the chassepôt bullet did not; I have had frequent opportunities of seeing that it does.

The differences observed in the size and appearance of the wounds of exit and entrance have not, in a great number of cases, been quite so apparent as those laid down in the books. It greatly depended upon the velocity with which the bullet was travelling. The greater the velocity, the less the difference between the two, and *vice versâ;* and this held good even when substances offering considerable resistance, such as the shafts of the femora, had to be traversed.

That the powers of the German of enduring pain with both patience and fortitude are greater than those of the French soldier I think is undisputed on all sides; and this higher vitality makes no small element in the cure of wounds. I fancy that I have seen more cases of traumatic delirium and irritative fever amongst the French, and more inclination for wounds to become foul and take on unhealthy action, *cæteris paribus,* than among the German wounded.

Under the head of treatment I would make some remarks on:—1. Amputations (the time chosen by Prussian surgeons) and excisions. 2, The uses of carbolic acid during the war. 3. Remarks on some special splints, the Trathosen, &c. 4. Some Prussian hospital appliances, the Esmarch bind, &c.

1. There are two operations which the whole experience of the war goes to show should be abandoned, at any rate in field hospitals, or until all further necessity for moving the patient is ended—viz. (*a*) excision of the knee-joint; (*b*) amputation by the flap method in the upper or middle third of the leg.

(*a*) As to excision of the knee-joint. These cases have proved exceedingly fatal. Prof. Nusbaum, of Munich, has performed this operation more frequently than any other surgeon during the war—between thirty and forty times. I have been given to understand, from a good source, that the operation has not met with success, even at his hands—not with such success as to justify its continuance in war time. And in my endeavors to sift the matter amongst both French ambulance surgeons and many Prussians, I have always received the same answer, that their cases died. The only case I assisted at I was unable to watch in its progress, owing to my being obliged to push on with the army; but I have since been informed that this one also ended fatally. During the latter part of the campaign, in the operations about Vendome and Le Molns, this operation has been abandoned by military surgeons, and amputation through the joint, or above it, performed instead. I understand that pyæmia and suppurative exhaustion were the principal causes of this mortality. I have seen Nusbaum perform the excision in a very rapid manner, and without requiring any assistance from anyone. With two transverse semi-elliptical cuts he removed the patella and overlying integument; then by a few touches laid bare the ends of the bone, when the bullet was found lodged in the head of the tibia. A good large slice was now taken off the ends of the bones, a linen band soaked in a watery solution of carbolic acid (1 in 200) laid across the floor of the wound, the ends left projecting on either side, and the edges of the wound then brought together over this band, and retained in position by wire sutures.

What a contrast excisions of the elbow-and shoulder-joint present to those of the knee-joint! The former have been found to do exceedingly well, and bear transportation, whereas it is almost death to transport a man with an excised knee—a fresh cause of mortality in itself to these cases.

(*b*) And now as to amputation by the flap method in the middle and upper third of the leg. The great objection to this method being employed in this situation is that, when the flaps are made to contain the muscles, the posterior one becomes very heavy; and, in spite of the best endeavors which can be given in the limited time in hospitals even for each patient, and more certainly still if transportation is attempted, will tear away from the anterior, leaving a large gaping wound with an extremely painful sensitive surface, very tender to the touch, and nasty projecting corners of bones, soon causing fever and traumatic delirium, if not exhaustion and death. On the other hand, when the flaps are only made to contain skin, they take a longer time (and time is of great importance often in these cases) to make, and do not offer so good a covering in this situation for the ends of the bones as that produced by the circular method. Upon the whole, therefore, I consider that circular amputations in the middle and upper third of the leg would, as a rule, meet the exigencies of military service in the field best.

Place.	No. of amputations.	Days after receipt of injury.	Nature of injury.
Bayneux	3	3	Gunshot wound: lower third of thigh. Shell wound: foot and lower third of leg blown off. Gunshot wound: upper third of leg.
,,	1	5	Ditto ditto
,,	1	8	Gunshot wound through knee-joint.
,,	1	9	Ditto ditto
,,	1	11	Ditto ditto
Meung	1	52	Gunshot wound through ankle-joint.

The circular method of amputating limbs is that generally practised by the German surgeons. I have not met with any adepts at the flap; indeed, an anecdote is related of a distinguished military surgeon who, at the commencement of the war, very successfully amputated a body from one of the lower extremities. I am not, however, in a position to vouch for its accuracy. They also object to making primary amputations, and elect to operate on the third or fourth day, if possible. Professor Huetar, of Marburg, has laid down, "that to operate on the third or fourth day is to cut all inflammatory fever short." So gunshot wounds of the knee-joint and ankle-joint, and compound comminuted fractures of thighs and arms, are quietly left untouched until the third or fourth day, or perhaps longer, as the foregoing table shows.

Here it will be seen that three gunshot wounds of the knee-joint were left untouched—one for eight days, one for nine days, and one for eleven days; and a similar wound of the ankle-joint, though with more extensive shattering of the bones, was left unamputated for fifty-two days.

In cases where gunshot wounds happened in the vicinity of the large joints it became a knotty question whether the joint was opened or not, owing to the uncertainty as to the amount of damage done by the ball—in short, whether it simply confined itself to smashing, or to smashing the bone and splitting the shaft as well. This uncertainty could not be better illustrated than by the following three cases. (No. 1) Private Johann B——, 32nd Regt., while advancing with his regiment to storm the village of Pouprey, on the 2nd of December, and exposed to a flank fire, was hit by a bullet on the inner aspect of the left thigh, a few inches above the condyles of the femur; the bullet then passed directly outwards, smashing the bone on either side of its course for a little distance. On introducing the finger into the wounds numerous small fragments could be felt; the artery, vein, and nerve were uninjured. Amputation at the middle third was performed three days after, when it was discovered that the joint was not opened. (No. 2) Private P. S——, 83rd Regt., was wounded by a ball in the right knee as he was about to kneel down; the bullet lodged. The day following some œdema of the foot was observed, and exploration with the finger detected the upper edge of the patella chipped. Was the joint opened? No operation, however, was determined on until the 11th inst., nine days after, when it was found that the ball had, after damaging the patella, entered the femur above the intercondyloid notch by a round hole, and thence taking an upward course through the bone, had lodged posteriorly in its substance, just about opposite the top of the popliteal space. The joint was not opened. (No. 3) On the same day an under Officer, J. B——, 40th Regt., was struck by a ball below the left patella; turning sharp round this, it disappeared, and could not be felt. Was the joint opened? For eleven days it was considered that it was not, but that in some curious manner the ball had avoided the joint, and passed backwards. However, on this day the joint commenced to swell above the patella, and synovia came through the wound. So the operation was determined on. It was then found that the ball had grazed the intercondyloid space; nevertheless it had split the shaft of the femur right up for three inches, and then passed directly downwards and backwards through the articular surface of the head of the tibia, to the inner side of the crest on that surface, by a well-defined punched-out opening, and slightly starring the surrounding bone, making its escape into the lower popliteal space, where it was found lodged in the belly of the gastrocnemius. Eleven days with all this mischief; still no pain, no synovial fluid, no swelling. Naturally enough it was a time for the conclusion that this injury was of the nature of the two preceding cases, and that the joint was not opened.

It has been observed that the mortality amongst the wounded in this war has been much greater than that of the war of 1866. However, at Cravant, near Beaugency, the 5th French Ambulance found that five out of nine amputations of the thigh recovered, or 55 per cent. of recovery; while at Bayneux, amongst our own cases, three out of five recovered, or 60 per cent. Amputations and excisions of the upper extremity were extremely successful; excisions of the knee-joint very fatal.

Pyæmia and hospital gangrene proved as great scourges as ever in the hospitals. It seemed extraordinary how these diseases appeared in some buildings and not in others, although both apparently presented the same conditions for attracting the diseases. Nor does the supposition of superior hygienic arrangements explain their absence from some buildings; for a very dirty building, with patients huddled together in small rooms, their personal cleanliness entirely neglected, and each man with one or more profusely suppurating wounds, was given over to our ambulance in January last, and in this building there had been no pyæmia or gangrene, although it had been occupied by a still greater number of wounded for a month back.

I have remarked that these diseases do not occur in buildings used as hospitals until they have been in occupation for some time, for ten days at least. I have not seen them occur in a room for only one patient, provided always that this room was not previously occupied by wounded. I have not seen them occur amongst patients in the upper stories of a house. As soon, however, as a room becomes poisoned, no disinfection or whitewashing seems to be sufficient to drive away the poison immediately, for the remaining patients placed in the room speedily become pyæmic also; men with slight as well as severe wounds take pyæmia. However, when the disease commences *de novo* the first cases are men with severe wounds. I have noticed a tympanitic condition of some wounds which have ended in pyæmia or extensive gangrene.

What, then, seems a rational course to adopt when pyæmia breaks out in a field hospital? Remove the case at once to another building, the upper story, if possible, and to a room by himself, and, as we found very beneficial with some of our cases at Bayneux, give large doses (twenty drops or half a drachm) of tincture of perchloride of iron frequently, every second or third hour. This seems to have some power of arresting the changes taking place in the blood, to arrest the cough and shivering; some general stimulant, such as port wine, also to be given freely.

2. Carbolic acid is known to the German surgeons as an ordinary disinfectant; it is certainly only used by them as such. When a fresh wound comes into a hospital, no attempt is made to destroy and exclude the germs, and to seal it up, but water-dressing is applied for some days; and then, if amputation is not determined on, a pledget of sharpie dipped in strong carbolic oil is placed over the wound; over this a dry piece of sharpie, and seldom a strip of adhesive plaster, with the intention of retaining the dressings. Gunshot wounds of the ankle, shoulder, and knee-joints are all treated in this manner. To dress a stump the "krankenträger," or sick attendant, pursues the following rough process:—He commences by taking off the old dressings; then leisurely, having discovered some water, he conveys this in his "einspritze" to to the bedside. If the patient has a nozzle of his own, this is placed in the india-rubber tubing of the "einspritze," and the wound is then syringed out by the simple elevation of the zinc vessel to which the tube is attached; if he has not a nozzle of his own, the wound gets touched and washed out with, perhaps, one that has just been going through the same process in a gangrenous stump close by. After this washing process, a piece of fine linen, perforated with numerous small holes and soaked in strong carbolic oil, is placed over the wound; then a pad of dry sharpie, tow, or cotton-wool; and finally, to retain the dressings and sustain the stump, the triangular bandage of Esmarch over all. In the same manner the surgeon applies his first dressing on the operation table; using the acid thus in the light solely of an ordinary disinfectant, and not as an antiseptic, for no attempt is made to destroy or exclude the germs causing putrefaction in these stumps or wounds. It is used too strong (varying from 2 to 3½, and even 5, parts in 10 of oil)—strong enough to strip the vicinity of wounds, especially those of the trunk, as I have seen in more instances than one; in fact, acting here as an escharotic.

This, however, was the first war for the Germans to make use of carbolic acid. *Condy's fluid* and other disinfectants had been used in 1866. Unquestionably they think very highly of it; and different results may be expected when all its properties are called out. No fair trial has been given to it in the late war. When the circumstances of campaigning admit of the antiseptic treatment of injuries, with those recently wounded its use will be very great; but for wounds of some days old I have found it no better than Condy. Hence in war time its usefulness must be greatly curtailed, owing to the difficulties placed in the way of its proper application to recent wounds.

Marine lint has proved an excellent dressing—a ready, deodorising, absorbent application to wounds profusely suppurating and offensive; but that sent out during the war was too coarse and lumpy for application to bed-sores or dependent parts, owing to the men finding it too hard to lie upon.

3. A few words now upon Splints. In the first place, there was a great scarcity of them on all sides. For gunshot wounds of the leg or foot, either for treatment in hospital or for purposes of evacuation of the same, I have seen no splint as useful, or to the purpose, as the "Drahthose," or iron-wire splint. This is a light splint, constructed of strong unpliable iron wire, the strands an inch or more apart, and arranged both longitudinally and transversly. It is for all the world like a commodious iron-wire boot, from which is cut away the part overlying the extensor aspect of the foot and leg, allowing of the ready introduction or removal of the extremity. Although not pliable, the edges can be approximated a little, and retained so by a few twists or lacings of a bandage. Dressings can be applied without necessitating the removal of the splint, and by its height over the limb and strength it forms its own cradle. A log of wood or brick placed at either side steadies the apparatus. The same splint elongated would answer admirably for the transportation or treatment of gunshot wounds of the upper third of the thigh.

Smith's anterior splint is likewise deserving of a place amongst those destined for service in warfare. I have seen it doing good service in Orleans.

4. Esmarch's bandage, and the "einspritze," I would now notice amongst the special appliances in Prussian hospitals.

The "einspritze," or syringe, is a very valuable assistant where there are many wounds to be dressed. It is a zinc vessel, cylindrical in shape, and made of different sizes. The top is open, and without a lid; near the bottom of the vessel there is a small spout of the same metal, which is sufficiently long to give attachment to one end of a long piece of india-rubber tubing; the other, or free end of the tubing, is made to embrace a short wooden or bony nozzle (one of which, it is intended, should be possessed by each patient). To arrange it for use, the vessel is filled with hot, cold, or medicated water, care being taken to place the nozzle through a small handle near the top of the vessel and above the level of the water. When the surgeon is ready, he takes the nozzle between his fingers; at the same time the assistant elevates the vessel the requisite height, according to the force of stream required; the flow is then directed on the surface, into the interior, and all about the wound, washing it out thoroughly. This is very cheap, very simple, and really invaluable at amputations, or where there are bad wounds. The waste water as it flows away from a wound is generally caught or received by small tin dishes, in outline resembling the longitudinal section of a kidney, and shallow. These are of great use for another purpose—washing wounds of the trunk; for, owing to the lateral depression, they can be approximated very closely to the surface of the body, and so prevent the usual wetting of other parts, and the patient's linen.

Esmarch's bandage is universally adopted in the hospitals; it is three-cornered, and forms an isoceles triangle, the base of which is much longer than either one of the sides. It is intended to supersede the ordinary roller, and in fact every other form of bandage. It is easily applied. Prof. Esmarch, of Kiel, the inventor, in his work on the subject, gives illustrations of its mode of application to all forms of injuries, and in all regions of the body.

For the retention of scalp dressings, wounds of the neck, trunk, and extremities, or as a sling for the upper extremity, it is exceedingly useful, readily made, and quick in application. As a means of retaining the dressings of a stump, and giving the requisite support at the same time, it has not been found to answer. To explain this, a word as to its mode of application. The extremity being elevated by an assistant, and the bandage opened out, the base of the bandage is drawn up under the stump, so as to bring its central point opposite the centre of the triangle; then the corners are brought together on the anterior surface of the limb, and when the apex of the bandage is carried over the face of the stump and laid under the corners, they are tied in a reef-knot, the apex of the bandage being turned over, and pinned down on the knot, or a point a little way below. If these corners are not tied sufficiently tight, the dressings are found not to be retained in their place; whereas, if the corners are tied tightly, greater pressure all round the limb at that point is the result, and a sort of semi-strangulated condition of the parts below follows. It was found requisite, therefore, in dressing this sort of cases, to fall back upon the roller.

I would add a few words on the "küssen" of Stromeyer, for fractures of the upper extremity, and the chloroform bottle and inhaler, but I fear I have taken up too much space already.

Albany-street, April, 1871.

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REMARKS ON THE

PATHOLOGY AND TREATMENT OF STRICTURE OF THE URETHRA.*

By W. F. Teevan, B.A., F.R.C.S.,

Surgeon to the West London Hospital and to St. Peter's Hospital, late Lecturer on Anatomy at the Westminster Hospital.

I intend here to make a few very brief remarks on the pathology and treatment of stricture of the urethra, as time will not permit me to do more than merely enunciate a series of facts which I have by enquiry ascertained. It appears to me that, in order to arrive at any satisfactory results, we must be thoroughly acquainted with certain facts required to be elicited; next, see what are the indications as to a scientific treatment; and, lastly, we must find out the values of the varying remedial agents which we propose to ourselves as means of cure. I am constantly in the habit of putting to students who have undergone a professedly thorough course of surgical training, this simple question, When would you say that a man was suffering from stricture of the urethra?—and I rarely get a correct answer. Students have but a vague and unsatisfactory knowledge of the pathological state. How, indeed, could it be otherwise?—for most surgeons would declare that if a No. 10 English catheter could be passed into a man's bladder there could be no stricture; and we thus have this most extraordinary and serious fact presented to our notice, that the urethra may dwindle down to one-third its natural calibre, without so grave a pathological state being recognised—nay, I would say, not even suspected. I consider that the diagnostic power of an educated surgeon ought to be something more and above the untutored perception of a working man; but in this complaint it is not so, for it usually happens that the patient is the first to discover the existence of a stricture by informing us that he has a difficulty in making water. Not until the enemy is at the door is the surgeon aware of his presence: scout or skirmisher he hath not. It ought to be our aim to recognise the disease in its earliest incipiency, and so abolish all necessity for any recourse to operative procedures. Can we do so? Most certainly. If there be one complaint which more than another worries a patient, whether he be rich or poor, it is the continuous presence of a gleet; and for this disease he goes about from hospital to hospital, seeking to get it cured. Now if such a patient present himself to us with a gleet of more than six months' duration, we shall always, on examining the urethra, find important pathological alterations, the most serious of which is contraction. The only instrument which can effect the acquirement of the knowledge we seek is the bougie à boule. I define stricture to be "any diminution of the natural calibre of the urethra, the result of the contraction of organised lymph." This definition, consequently, embraces the disease in all its stages; and if we diagnose the complaint in its earliest incipiency we shall render the sufferer an immense service, for we shall entirely purge the disease of its evil effects on his renal organs, and abolish all operative procedures. The first sign of a stricture is the presence of a gleet of more than six months' duration; and, long before we have the symptoms resulting from a mechanical contraction, we have usually some more or less well-defined symptoms, such as increased micturition, pain in the loins or perineum, trembling at the knees whilst urinating, or a sensation of cold water running down the spine. I would, however, insist upon one point, and that is, whenever a patient comes to us complaining of a gleet of some months duration, we ought never to omit to examine the urethra with the ball-staff.

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* Read before the Medical Society of London.

Now a few words as to the seats and physical attributes of strictures. Let it be ever kept in mind that stricture is atrophy, not hypertrophy; and that not only does the urethra become contracted, but also tortuous, which latter fact shows the inapplicability of metal instruments in the treatment of the disease. Strictures are usually situated at the triangular ligament, and their division into bulbous and membranous is entirely artificial, and not warranted by any facts; I group these together and call them alike "subpubic," thus simplifying the nomenclature. It will be found that this stricture is usually at a spot five inches and a half from the meatus externus. Why is this variety of stricture the most common? For the simple reason that, when there is increased vascularity between the canal and the ligament, the latter commences to act as an irritant and constricting agent by preventing the expansion of the urethra in the act of micturition. But you may say to me—How, then, is it we sometimes get a penile stricture without a subpubic one? For the reason that we constantly meet with men whose fibrous apertures are larger than they ought to be. If the aperture in the triangular ligament be larger than the normal size, the edges of the opening will not exercise any constriction on the urethra when expanded in the act of micturition. If, therefore, we meet with penile stricture only, we may conclude that it is because the patient has a very large aperture in his triangular fascia. If we examine one hundred patients, we shall find that eighty have the subpubic form of stricture; eighteen the penile variety, which is situated at a spot varying from 2½ in. to 3½ in. from the meatus externus; and the remaining two have strictures at the orifice, which I consequently call orificial. It is rare to meet with a subpubic stricture without finding some induration or leatheriness at the penile spot. Orificial strictures are often caused by chancrous ulceration. I have measured the urethræ of one hundred adult males, and find the average length to be 7½ in., thus rather shorter than is usually supposed. Strictures give to the bougie à boule either the sensation of travelling through a *tunnel*, or the feeling of passing through a sharp and well-defined *ring*. I therefore speak of strictures as being either tunnel or ring strictures. Subpubic strictures are generally of the former kind, whilst orificial are of the latter. Penile strictures are as often ring-like as tunnel-like.

What is the result required to effect a cure of a stricture? No urethra can ever be said to be cured till the diseased and contracted portion is restored to its normal calibre. Some time ago I instituted a series of practical inquiries to ascertain what was the normal capacity of the urethra, and I found that the subpubic urethra will admit the terminal joint of the forefinger without laceration. The results will be found at p. 186 of the "Pathological Society's Transactions" for 1866. Now all means which have not for their end the restoration of the urethra to its normal calibre will fail—that is to say, if the urethra, by dilatation sudden or gradual, rupture, or incision, be only enlarged to a diameter less than its normal capacity, we shall most infallibly have a return of the contraction, unless we from time to time keep up the diameter of the tube to that which we had stretched it. In severe forms of stricture there is only one instrument that can be introduced, and that is the French filiform bougie; and I venture to assert that, with patience and perseverance, a surgeon will rarely fail to introduce this instrument. Whatever treatment be adopted for stricture it must always be followed, and nearly always preceded, by gradual dilatation. It thus appears that there is *only one* which can be called *the treatment*—that by gradual dilatation; all other methods are merely auxiliaries. The bougie can nearly always dispense with the knife or dilator, but they are useless without the bougie. In a limited number of cases the bougie will fail to enlarge the contracted urethra beyond a certain point, or if dilated to a considerable size, it will speedily contract again. In such cases an operation is desirable.

All operations on the urethra may be divided into two classes: those which burst the stricture by lacerating, and those which divide it by cutting. Which are preferable? Surgical pathology settles the point at once, for we know that there is more contraction after a laceration than after a cut. Hence we ought to choose that kind of operation which is attended with the least contraction, which, consequently will be the cutting one. From what I have seen of Mr. Syme's operation in the practice of different surgeons, and from all I have heard of it as practiced by its originator, I have come to the conclusion that it ought never to be resorted to unless the state of the perineum is such as to preclude all other operations. The treatment of stricture by forcible rupture would seem in this country to be following a similar fate to what it had in Paris, where it was first introduced, as it has been discontinued by Sir W. Fergusson, Mr. Coulson, Mr. Henry Smith, and other surgeons. The unknown rate of mortality attached to it is not calculated to recommend it, and I am aware of twenty-one deaths which have followed its use in the hands of different hospital surgeons. The great advantages which gradual dilatation, when carried out by the French elastic instruments, possesses over all other methods is, that it is absolutely harmless, no death ever having taken place from its employment, and that it can be employed in the most diseased subject without the slightest fear. It is also the only treatment which can restore the urethra to its normal calibre.

But whatever operation be employed for the relief of stricture, it must be supplemented by the regular use of the bougie for the rest of the patient's life, as no known method of treatment is free from an infallible relapse apart from its use. It follows therefore that, inasmuch as in the majority of strictures the bougie can effect all, and more than the knife or dilator can do, and, unlike them, can never kill a patient, it presents itself to us for our acceptance with recommendations possessed by no other known instrument; and I venture to assert that the bougie will be used when urethrotomes and dilators are forgotten.

The treatment of stricture may be summed up—1. Gradual dilatation, wherever possible. 2. Subcutaneous urethrotomy, wherever desirable. 3. External urethrotomy, without a guide, wherever necessitated.

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ON THE

ACTION OF LIGHT IN SMALL-POX.

By J. H. Waters, M.B.

No. II.

The action of light on vegetable nature is more easily studied than that on animal, its influence being, for a time at least, of more vital importance to the one than to the other. An excellent example of its effect is seen in Priestley's "green matter" which forms on water and damp places when they are exposed to the sunlight, and which consists of cells of the Confervæ in various stages of development; for although a certain amount of heat is necessary to their formation, it is to light that their existence is due, both in the first place and during their process of life. No degree of heat without light will produce these cells, however much the air may be charged with the germs from which they are formed. On water of any degree of temperature, placed in the dark, there is no formation whatever to be found; but if light is freely admitted, variations in the heat of the water is of little consequence, and under the same degree of heat the formation depends on the intensity of the light. Plant-seeds allowed to grow in the dark are only developed to a certain extent; their leaves, &c., are found to be of a yellowish white, and their solid contents do not increase in weight, though their bulk may enlarge by the absorption of water; but if these plants are examined with care when exposed to the sunlight, they are found to be constantly decomposing the carbonic acid of the atmosphere, appropriating the carbon, and setting free the oxygen. For them to carry out this function they must be subjected to the light-giving rays of the solar spectrum, and in proportion to the illuminating power of the ray so do they perform this action. It is also found that the stomata (orifices in the cuticle of the leaves of the higher plants, for the admission of air, &c.) have two or more cells that guard their entrance, and perform the action of closing or of opening them; the former when the plant is in the dark, and the latter when light pervades the medium in which they are placed. These orifices perform for the vegetables in which they are found an analogous function to the sudoriparous glands of the animal. Thus, the green surfaces of plants grow towards the light, on account of the operations they have to perform under its influence; the roots avoid the light, as they throw out the carbonic acid by respiration; for if light is thrown on germinating seeds from below, the roots grow upwards, and the stems &c. downwards.

On animals the action of light is little known. It is evident it differs from that on vegetables in their first stage of nutrition because animals do not perform any such acts of combination; but, by assimilating the vegetables themselves, obtain their nourishment so elaborately prepared for them by these, as it were, intermediate links in the chain or "circle of life." Animal surfaces do not therefore become so extended as those of the vegetable; still, there is no doubt that the health and well-being of animals do also in a great measure depend upon light. We know their color is derived from its action, for the eyes and hair of the newly born are without any decided color for days after their birth. When an animal has been found embedded in a stone it is transparent, and so sensitive that it will hide from the light if exposed to it. In the races of men where the sunlight acts upon their skin, we find freckles, a swarthy hue, and different degrees of pigmentary development up to black, according as there is more or less intensity in the light of the country in which they and their ancestors have lived. The pigment cells in the skin, to which the color is due, are like true epidermis cells drying up and becoming flattened scales as they near the surface, thus imparting the blackness to it. They are best seen in their integrity when covering the blood-vessels of the choroid coat of the eye: here they present the polygonal form; each cell contains a nucleus, and the dark color is caused by numbers of flattened round granules. Their chemical nature is not known; it is shown to resemble very nearly the cuttle-fish ink or sepia, which derives its color from the cells lining the ink bag of the animal, and to have more carbon than most of the organic substances (about 58½ parts in 100).

Many researches show that light greatly modifies the development of animals, their health, and recovery from disease. Dr. Edwards has proved the first; for if tadpoles are properly fed, and have plenty of water, but are kept in the dark, he has remarked they never undergo the change into air-breathing animals, but remain fish—large tadpoles. The appearance of animalcules in infusions of decaying organic matter is greatly retarded by being placed in the dark. If those animals which inhabit dark places, as the cockroach, are reared entirely secluded from light, they grow up almost colorless, like plants under similar circumstances.

Nations who inhabit hot climates, and wear little clothing, are remarkably free from deformity; on the other hand, those people who live in mines, in cellars, or in dark, narrow streets, have mostly misshapen and weakly children, This may be partly due to bad air, but greatly to insufficient light. Patients recover better from most diseases when their apartments are properly lighted. Even in health the effect of the dark days is felt on the spirits of everyone, more or less.

The circulating fluid is the means by which all parts of the body are nourished. In man the blood's component parts are fibrine, albumen, corpuscles, saline matters, and ill-defined animal principles. When these sources are duly supplied, and when all the various organs and tissues abstract from it the special materials they need, a general balance is maintained in the system, and, as Mr. Paget has so well said, "each single part of the body, in respect of its nutrition, stands to the whole body in the relation of an excreted substance." But allow any of the rough materials for forming the blood to be too large or too small in quantity, or let an organ act imperfectly, and every part of the body becomes more or less unfavorably affected. In disease of the skin, its sensibility is greatly altered, according as the peripheral termination of the sensory nerves in it are supplied with blood; anything that retards this supply diminishes their sensibility, and, if the flow be completely stopped, entire loss of feeling results, as in severe and prolonged cold. If there is a determination of blood to the surface, it becomes highly sensitive, and it is more easily acted upon by external stimulants, as cold, heat, light, &c.; the nerves being supernaturally supplied with nourishment, they convey to the brain perverted impressions. Thus the temperature of the part does not really increase beyond that of the left ventricle of the heart; but the greater impressibility of the nerves leads the patient to imagine it does; there is greater appreciation of the heat, and even magnifying of the degree. Pain also is due to their excited state, and to pressure upon the terminal branches by the dilated bloodvessels. In disease nature frees herself from the morbific poison by the action of the glands, and of these perhaps the most used are the sudoriparous and the sebaceous. It is by these the poison is eliminated in small-pox; but by their excessive action inflammation is set up, the nerves bebecome hypersensitive, they magnify the effect of external stimulants, and by reflex action the inflammation of the part is increased, when thus exposed to what in ordinary circumstances would be but healthy and desirable stimulation; the reflex inflammation preventing the natural elimination of the disease, and the two causes increasing its severe symptoms. The tissues thus injured approximate to the condition of dead matter; and, as Mr. Lister has shown, pus is thus formed, which, being reabsorbed, causes secondary fever—that is, true surgical fever, as Mr. J. E. Erichsen says, "occurring only as a consequence of, and secondary to, local disease or injury." The stimulating action of light has a detrimental effect in this disease, and for this reason I have followed John of Gadsen's idea, excluding it from the patient in the eruptive stage. In practice I find the most beneficial results to follow, rendering what has hitherto been so dangerous and loathsome comparatively mild and inoffensive. It is wonderful to see a patient with severe confluent small-pox on face and body sitting up, with no fever, no head symptoms, no pain, enjoying her food, no itching, tingling, or bad smell, or, in fact, aught but a stiff, strange feel of the skin, which is described as "rather unpleasant," followed by no secondary fever and no other complications; and yet this is the history of a case I attended a few weeks back, and is the description of all, even the most severe cases.

What the chemical action of light may be, is not yet known. There is little doubt that both animals and vegetables depend upon it for their well-being in a far greater measure than is supposed.

March 30th, 1871.

TWO CASES OF OVARIOTOMY.

By A. C. C. De Renzy,

Sanitary Commissioner, Punjab.

Kurmoo, aged thirty, was admitted into the Multan Dispensary on the 1st May, 1866, in a very anæmic state. She had suffered from an ovarian tumour of great size for some years. She had been tapped six times, the last time on the 16th March, when, it is said, three gallons of "coffee-grounds" fluid was removed. The operation was followed by great prostration. The sac refilled rapidly, and after a fortnight or so it had nearly attained its original size. As her life had now become a burthen to her, I consented to her earnest entreaty to be relieved of the tumour at any risk.

I operated on the 20th May, assisted by Drs. Greenhow, Wood, and Alcock. The tumour was found firmly attached all over its anterior surface by very strong leathery adhesions, which required considerable force to break up. The right half of the omentum presented a blackish diseased appearance, the contained glands being soft, black, and pultaceous. The pedicle was about three inches long. It was tied in two parcels with a silk ligature, and its extremity was brought out and fixed in the external wound with a needle in the ordinary way. The diseased portion of the omentum was partially removed, the proximity of the colon having deterred me from a more complete removal of it. The patient bore the operation very well, and appeared to be going on very well for nine hours afterwards. She had a quiet sleep for some hours. Towards evening, however, symptoms of peritonitis supervened; and she died the following morning at three o'clock.

A post-mortem examination revealed a very circumscribed peritonitis, confined entirely to the right side of the abdomen and encircling the diseased part of the omentum. The peritoneum external to the diseased circle was paler than usual. If the patient had lived longer, the whole of the peritoneum would probably have become involved in the inflammation; but the fact that in the first instance the inflammation was so strictly limited to the parts adjacent to the diseased omentum suggests that a blood-poison, derived probably from the softened mesenteric glands, was the immediate cause of the fatal result in this case. Later experience has convinced me that the diseased structures might have been removed with comparative safety. The tumour was multilocular; the solid portion weighed 29 lb.

Miriam, aged thirty-three, a Mussulmani woman, was admitted into the Multan Dispensary on the 4th of May, 1867. She had suffered from an ovarian tumour for six years. She was tapped in the dispensary on the 10th of December, 1866. The tumour refilled very rapidly. On admission she was in a very low state, being greatly emaciated and anæmic; ankles œdematous; pulse small and thready—120 to 140; great dyspnœa, caused by the pressure of the tumour on the diaphragm and the displacement of the heart upwards. Her girth, measured round the umbilicus, was fifty-one inches; from the ensiform cartilage to pubes, thirty-two inches. She complained of distressing thirst; her tongue was red, and presented numerous deep, sharp-edged fissures, as if cut with a knife; her urine was free from albumen. She was in so low a state that I shrank from an operation having for its object the removal of the tumour, and I contented myself with tapping. On the 10th of May I drew off twenty-eight pints of the usual straw-colored ovarian fluid. After all the fluid had come away there remained a solid, immovable tumour, which occupied the whole of the abdomen below the level of the umbilicus. The operation relieved the dyspnœa greatly, and she was able to lie down and have some refreshing sleep. Her pulse, too became firmer and larger, though its frequency was as great as before. After a few days it became apparent that the tumour was refilling rapidly, and by the end of May it was as large as ever, and her distress became so great that I could not resist her importunities to be relieved at any risk. Having got a large trocar and canula made in the bazaar, I proceeded to remove the tumour on the 4th of June, 1867, assisted by Assistant-Surgeon C. A. Maunsell, R.H.A.; Staff Assistant-Surgeon J. Jones; and Sub-Assistant-Surgeon Ram Lall Ghose. The weather at the time was intensely dry and hot. The operation took place at six in the morning. The thermometer in the shade then marked 90° F., the wet bulb standing at 69° F. At 4 P.M. the dry bulb stood at 112° F; the wet bulb 71° F.

The tumour being exposed, I found it in every direction so firmly adherent to the abdominal parieties that for a moment I despaired of being able to remove it; but, remembering that a miserable death to the woman would be the *certain* result of its being suffered to remain, I took courage, and by tearing and cutting, with great labor, I at last succeeded in freeing the tumour from its anterior attachments; but it was so firmly attached posteriorly that very forcible traction had to be applied for some minutes before it gave way. The pedicle, which was short and thick, was first tied in two parcels with a horsehair ligature, made of five horsehairs twisted and doubled so as to form a pretty strong rope. The second parcel being tied, the ligature was turned back so as to include the whole pedicle in one noose. One end of the ligature was cut off, and the other brought out, the end of the pedicle being fixed in the external wound in the usual way with a needle. The abdominal wound was closed in the usual way with deep-set needles and superficial horsehair sutures. As soon as she had recovered from the effects of the chloroform the patient took a dose of one drachm of laudanum, and soon fell asleep. She had not a bad symptom afterwards. She was fed on bread-and-milk, and good soup made of beef extract. Her bowels remained unmoved for five days, and she was unable to pass urine without the aid of the catheter till the 9th, when she regained full control over the bladder. Her bed was lifted out of the ward every evening, and placed in the open air, where she slept through the night.

As soon as the patient got strong she became very impatient to have the pedicle ligature removed; but up to the 24th June it showed no signs of coming away. On the 26th, in my absence, she tugged at it herself in hopes of getting it out; and her violence brought on severe pain and tenderness all over the abdomen, which looked very serious for a time, but hot poultices and a large opiate dissipated the danger. Up to the 28th July the ligature remained firmly attached, and, as she was getting greatly annoyed at what she regarded as an unseemly blemish, I cut it off as deep in the wound as I could reach with the point of a scissors. She was discharged from hospital the same day.

On the 11th October she rode-in twenty miles on a pony to ask my advice for a neighbour who had a large spleen. She looked remarkably well, sleek, fat, and well-thriven. At the point of exit of the ligature there was a small papilla, from which a drop of watery fluid exuded.

The tumour was multilocular. The solid portion weighed 14 lb., the fluid portion about 28 lb.

I was led to use horsehair as a ligature in this case by my experience of its advantages as a suture in several rhinoplastic operations. It appeared to me to have all the advantages of silver wire as a suture. It did not act like a seton, and lead to the formation of pus, as the ordinary thread suture did. It appeared to cause no more irritation in the tissues than does a gold or silver ring in a woman's nose or ears. At the time of the operation I was under the impression that a horsehair ligature would have cut itself out as the thread suture does, but in the present case it is certain that it has not done so; and from a few experiments made subsequently on dogs, I have reason to believe that a horsehair ligature would very rarely if ever become detached. I castrated a dog, tying the spermatic cord with one horsehair. After two months the dog was killed, when I found the end of the cord firmly agglutinated to the adjacent tissues, and encircled by the hair just as when it was first applied; the end of the cord distal to the ligature had been reduced to a semi-ligamentous condition, owing to the diminished circulation of blood in it. I also tied the femoral artery of a dog with a horsehair, and the external wound was closed up with hoasehair sutures. Though the animal licked the sutures out, the wound after a time healed up; and when, three months afterwards, the animal was killed, the ligature was found *in situ* on the occluded artery. The same experiment performed on the carotid artery gave a similar result; but in this case, the animal being unable to lick the wound, it healed up by the first intention, and so well that I had great difficulty is discovering the cicatrix at the post-mortem. In an amputation of the forearm of a woman I tied the radial, ulnar, and interosseous arteries with one horsehair each, both ends of the ligature being cut off close to the vessels, and closed the wound with horsehair sutures. The wound healed very rapidly and almost by the first intention, and the patient appeared to have suffered less pain than I had before observed in any similar amputation. The ligatures were carefully looked for, but never made their appearance, and I believe they remained *in situ* on the vessels.

The case of Miriam renders it, I think, probable that horsehair would prove a very valuable material for ligatures in ovariotomy. One horsehair would be found quite strong enough to arrest hæmorrhage from the pedicle, or from any vessels that might require to be tied in the course of the operation. The pressure exerted by a horsehair might be made at least equal to that which suffices to arrest hæmorrhage by acupressure. A pedicle ligatured with a horsehair might, I believe, be dropped into the pelvis with an almost entire freedom from risk of suppurative inflammation.

Kingstown, February, 1871.

ON THE

THERAPEUTICAL ACTION OF QUININE ON MALARIA.

By Gopaul Chunder Roy, F.R.C.S.

With all the boasted researches of modern medicine, the action of quinine on malarious fevers still remains an enigma to solve. The same empiricism which at first introduced this valuable medicine in practice yet actuates the practitioner to prescribe it in blind acknowledgement of its remedial powers. No time, therefore, can be said to be unprofitably spent that is devoted to discuss the topic, How does quinine influence the system? To enable us to comprehend its mode of action, I will take the liberty to advert for a moment to my views on the nature of malaria. It is a subtle poison manifesting itself in certain symptoms which primarily consist of derangement of the functions of the ganglionic nervous centres. The stage of incubation, in which the general malaise, languor, chilliness, and altered secretions, are the marked features of complaint, would afford proof in support of the statement. Nor do the symptoms of actual invasion add less weight to the assertion when we observe the peculiar altered balance of circulation manifested in the cold and hot stages of fever under its influence. The circulatory apparatus of our organism is under the direct control of the sympathetic system; and we can easily understand how an influence exerted over the latter would modify or alter the governing power. The tendency to rapid death by asthenia from the concentrated action of malaria on the system is borne out by experience in the fresh outbreak of an epidemic; and the inflammations of different organs from the same cause, as meningitis, splenitis, hepatitis, dysentery, &c., are further evidences of the weakening influence of the poison on the local circulation of blood, inducing perverted nutrition in organs probably predisposed to such attacks. When the poison falls short in its virulence, changes in the nutrition of structures occur, which are physiological as far as the process of hypertrophy is concerned, but become of pathological significance on account of their unnatural growth without any apparent demand or necessity in the economy. Thus the large ague cake, and elephantiasis of the scrotum, leg, or forearm, although they are consistent with perfect health of the individual, yet no doubt are deviations from the natural standard, which, carried beyond an ordinary size, become a source of danger and an incumbrance.. To sum up, then: the effect of malaria is primarily spent on the organic system of nerves, especially on the parts governing the circulation and nutrition of our body, producing the various phases of alterations evidenced in hypertrophy, inflammation, and death, according to its degree of concentration and virulence. It has a tendency to weaken or paralyse the walls of the bloodvessels, and favor their dilatation and engorgement.

Quinine is admirably adapted to counteract the influence of malaria by virtue of its tonic effect on the sympathetic system. In enfeebled states of the constitution, it promotes digestion and secretion and gives tone to the heart; under its use the pulse becomes smaller but stronger. In heat-apoplexy with great pungency of skin, its exhibition reduces the temperature of the body by counteracting the paralytic condition of the vessels. In intermittent fever, given before the expected paroxysm, it remedies that condition which causes determination of blood to the skin and the consequent pyrexial symptoms. A large dose acts just in the same way as smaller doses repeated at frequent intervals, but with greater energy and certainty. Probably in such instances the former is the more efficient mode of administration; for, inasmuch as the attack ushers itself in a sudden outburst of symptoms, it stands to reason that a stiff dose would be more effective in obviating the tendency. This view will enable us to discard the assumption which ascribed the beneficial action of quinine in such cases to the unknown agency of "shock." It has no peculiar virtue on malarious poison, and, given with the belief that it removes the malarious taint of the conststution, it often fails in attaining that end. Hence the notion is gaining ground amongst practitioners that, although quinine will cut short a paroxysm of fever, it does not cure it. Its use can be extended to other diseases where the same defective power is observed, irrespective of malarious origin. Thus in idiopathic and surgical fevers, in burning of the palms of the hands and soles of the feet, and like diseases of perverted circulation, it would prove an invaluable remedy; but when the condition of the part merges into the pathological state of inflammation, as in meningitis or dysentery, I hold its curative power to be at best doubtful.

Glasgow, Feb. 1871.

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ON HUMAN MILK.

By C. Meymott Tidy, M.B.,

Joint-Lecturer on Chemistry at the London Hospital.

I have been waiting somewhat anxiously to see if Dr. Muter's paper on Human Milk, recently published in The Lancet, received any further attention from the profession. This must be my apology for venturing to make a few remarks on the subject, though somewhat late in the day. I quite agree with Dr. Muter on the importance of examining the milk in various forms of disease. The fact is, as a profession, we have not profited so much by chemical analysis and research as we might have done. A physician's powers of analysis are too much limited to boiling urine.

In a paper published four years ago in the "London Hospital Reports" (1857) I gave a large number of analyses that I had made of normal human milk, as well as several careful analyses of the milk of other animals. Since then I have from time to time, when leisure and opportunity allowed, examined samples of the milk of patients who were suffering from any special form of disease, as well as in those cases—not very unusual, one regrets to say—where in a marked manner the infant fails to thrive on its natural food. I intend before long to place the results of my examinations before the profession, as some most important facts bearing on clinical medicine are, I think, deducible from them. I may just mention a single case in point, which has but recently come under my observation.

A lady, a patient of an old pupil, consulted me a few weeks back respecting her infant, six months old, that, to use her own words, "was becoming miserably smaller day by day." Upon examining the mother herself, I made out undoubted signs of incipient tubercular disease of the lungs. The child was certainly a most wretched-looking object, keeping up a perpetual whine, for it seemed to have no power to cry. I suggested an examination of the milk, to which she at once consented. I then found a most extraordinary diminution in the usual amount of fat; indeed, the percentage was much smaller than I had ever before noted. I proposed, acting on my analysis, drawing off the milk at stated times, mixing it with a given quantity of mutton suet, and that the child should be fed with this from the bottle. In order to obtain accurate results of this method of treatment, I prescribed no medicine excepting an occasional powder to keep the bowels regular. I saw the child a fortnight afterwards. The result was astonishing. "She could see it grow," the mother told me. The same plan of treatment has been persevered in, and I am told it continues to thrive amazingly.

This is one case—I admit a very marked one—out of several that I have jotted down in my note-book where important facts may be gleaned from milk analysis. Indeed, I am daily becoming more and more convinced that a large number of the diseases of infants are better treated by the addition of the several matters wanting in their natural food than by pouring medicines down their little throats. I have from time to time made about seventy analyses of healthy human milk, and have taken the average of all these experiments as my standard.

There is one point on which I venture entirely to differ from Dr. Muter—that is, respecting the applicability of Dr. Frankland's method of water analysis to the examination of milk. I agree in this, that it would give us accurate results with such quantities as we ordinarily find in milk, just as I entirely question its accuracy with the minute quantities of a water residue. I am speaking with some confidence, having made a large number of experiments upon this matter, at the suggestion of my friend and colleague, Dr. Letheby. The trouble the method involves is enormous; and I feel convinced, if it is our endeavor to aid the cause of chemistry in its application to medicine, we shall not do so by suggesting impracticable methods of inquiry, but by continually bearing in mind that our processes of research, whilst accurate, must be easy and simple.

Cambridge-heath, Hackney, March, 1871.

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A CASE OF

PERFORATING ULCER OF THE STOMACH; RECOVERY.

By T. Tinley, L.R.C.P. Edin., &c.

I am induced to forward the particulars of the following case of recovery after perforation of the stomach, it being similar to the one recorded by Dr. Ross, occurring in the North Staffordshire Infirmary, and published in The Lancet of May. As I have not any notes of the case, I have to rely entirely on my memory, and can only give the line of treatment pursued, regardless of dates.

I was sent for on Nov. 21st, 1868, to visit Mrs. B——, who had been taken suddenly ill. On arriving at the house I found her in a state of collapse, with a quick, scarcely perceptible pulse, pallid, and covered with cold clammy perspiration. There was constant retching, but no vomiting of any account, merely a small quantity of grumous fluid, having the appearance of blood acted on by the gastric juice. I remained with her some time, and gave her a dose of opium. I found, on inquiry, that for some time she had complained of a burning pain coming on shortly after taking food. The pain was at a fixed point in the epigastric region, shooting through to the back, accompanied by nausea, but only occasional vomiting. She had never sought relief, thinking it would get better. On the morning of the 21st, while preparing dinner, she was suddenly seized with severe pain in the epigastrium, causing her to scream violently, which she continued to do at intervals for some time. Fomentations were applied to the abdomen constantly, and a grain of opium given in pill every third hour, which procured very little rest, and only partially relieved the pain.

On the second day after the occurrence of the above symptoms the pain had extended over the whole abdomen; the knees were drawn up, the pulse became very high and wiry, the countenance anxious, and, in fact, all the symptoms of acute general peritonitis set in. I ordered a turpentine stupe to the abdomen, to be followed by hot fomentations; and beef-tea and brandy injections every fourth hour. Neither liquid nor solid was taken into the stomach for above a week. Her thirst was relieved by gargling with cold water. The stupe and fomentations relieved her to a considerable extent, and she gradually but slowly improved; but up to Dec. 11th the abdomen remained tympanic and painful on pressure. I then ordered a blister to be applied over the whole abdomen, after which she progressed rapidly, and has been in good health ever since.

I am inclined to look on the above as a clear case of gastric ulcer ending in perforation; for although the symptoms of ulceration had not been so well marked as they sometimes are, still the pain occurring shortly after taking food, aggravated by hot liquids, such as hot tea; the burning character of the pain, shooting through to the back; the sudden occurrence of excruciating pain, first in the epigastric region, followed by general peritonitis,—leave little doubt as to the nature of the case. I believe the favorable termination of the case is to be attributed to its occurring at a time (just before a meal) when the stomach was, in all probability, almost if not quite empty, the previous meal—breakfast—being very likely composed of food easily digestible.

Whitley, Yorkshire, January 25th, 1871.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

CASES UNDER THE CARE OF MR. SIMON.

A Case of Suppuration in the Tissues superficial to the Hip-joint.—A young woman was admitted some three weeks ago with a profuse purulent discharge from an opening situated immediately over the hip-joint; it had since resisted every attempt to check it, and had brought the patient into serious peril. In repeated examinations which she has undergone, Mr. Simon had failed to detect the slightest evidence either of bone or joint disease; he had met with nothing more than a large suppurating cavity in the soft tissues, and to which he was inclined to attribute a bursal origin. He gave instructions that the patient should be removed to the seaside, and expressed foreboding as to the termination of her illness, which the patient's wasted and hectic appearance appeared to justify.

The Treatment of Cancer.—A woman had been admitted with an epithelioma of the tongue, in a stage so advanced that Mr. Simon did not consider it advisable to operate; but as he holds that unremitting efforts should be made to discover, either within or without the Pharmacopœia, some substance which will exercise a remedial influence over growths of a cancerous nature, he is making trial at the present time of the biborate of soda.

Acute Suppuration in and around the Knee-joint.—The patient exhibited the good effect which follows early and free incision in this class of cases. On admission, the left knee-joint and the adjacent tissues of the thigh and leg were in a state ef acute inflammation. Under the treatment just indicated the inflammation completely subsided, and the patient has recovered sufficiently to be able to flex the leg to an angle of thirty degrees without difficulty or pain; but, as the joint permits of an excess of lateral movement, she will be obliged, on leaving her bed, to wear, at least for a time, some appliance which will afford lateral support. The scars of the incisions bear witness to the extent of the inflammation: one is situated on the external margin of the popliteal space, and there are four others on the internal and external aspects of the leg and thigh, two on each side, from four to five inches apart.

The influence of Vibriones on Vesical Discharges.—A middle-aged man came under Mr. Simon's care suffering from stricture of the urethra, and a purulent catarrhal discharge from the bladder, which rendered his urine peculiarly offensive. The urethra was first dilated in two successive operations by means of Holt's instrument, and then the bladder was daily washed out with a solution of quinine through a double-current catheter. Under this treatment the urine became clear and free from offensive odor in a few days, and the patient, from being obliged to rise as many as fifteen times a night to micturate, became able to hold his water so well that he needs to leave his bed no more than once or twice within the same space.

Referring to this patient, Mr. Simon said that the presence of vibriones in a purulent catarrhal discharge from the bladder coincides with an exceedingly foul and offensive condition of the vesical evacuation, which ceases to exist when the destruction of these bodies is effected. That object is attained most readily by injecting into the bladder a solution of quinine. Mr. Simon makes use of the hospital solution, which contains two grains to the ounce. He recommends that nitric acid should be the solvent employed, and that a drop of acid should be added in excess of neutralisation.

HOSPITAL FOR SICK CHILDREN.

NOTES OF A CLINICAL LECTURE ON CHOREA.

(By Dr. Dickinson.)

Dr. Dickinson commenced his lecture by giving a brief account of the affections closely allied to chorea, which have attracted attention at different times, and acquired separate names—namely, the dancing mania of St. John, which spread from Aix-la-Chapelle to Cologne, Metz, and Strasburg; the Tarantula dance of Southern Italy; the "Convulsionnaire," of France; and a similar affection which is observed among the natives of Abyssinia. He showed that these diseases were dependent on an intimate connexion between the intellectual faculty aud the voluntary muscles, and that the infection spread mainly by imitation. He also suggested that the phenomena observed in the Jumpers of Cornwall and the Shakers of the New World to follow the reception of powerful religious impressions are likewise allied to chorea.

Directing attention to the *cause* of chorea, he said that it could in a large number of instances be traced to fright, and adduced the evidence of a number of cases which he had brought down from the wards for purposes of demonstration. Another, but less frequent, cause was irritation, arising from an unhealthy condition of some part of the body, such as a loaded intestine or an irritable condition of the uterus. A case in point was that of a girl sixteen years of age, who had died of an attack of chorea. The cervix uteri was found to be in a state of intense congestion, and the os was covered with a membrane resembling that of diphtheria; there were also traces of recent endocardial deposit. The pathological connexion between chorea and certain conditions of the heart and lining membrane Dr. Dickinson was inclined to attribute to a peculiar condition of blood, which is favorable to the deposition of lymph, and tends also to induce congestion of the cerebro-spinal system. With regard to the age at which chorea most frequently occurs, the hospital registration was said to show that children between the ages of six and fourteen are most liable to it; but it was not purely a disease of childhood, though after puberty the frequency of its occurrence decreased with advancing years. One case which Dr. Dickinson mentioned was that of an old man, sixty-four years of age, who became violently affected on learning the death of his master.

Turning to the *symptoms* of the disease, Dr. Dickinson said that it had been well defined as an insanity of the voluntary muscles; the only involuntary muscle liable to be included in the morbid influence was the heart, which was histologically a near ally of the voluntary muscles. He thought that, nevertheless, the heart is not usually affected primarily like the other muscles, but influenced secondarily by the endocardial deposit. As to the parts chiefly affected, he said that, as would be expected, they were those which are principally governed by the centres in which intellectual faculties preside, and that accordingly the muscles of the upper extremity were first and chiefly affected, those of the lower extremity being later affected and to a less degree, and recovering earlier. Examples were then given of some of the less obvious developments of this disease: among these were cases in which the only symptom is a peculiar barking or some other inhuman sound produced by irregular action of the laryngeal muscles; or a peculiar and violent spasm of the orbicularis, most frequent in old age, which makes the patient wink violently; another was that of a woman whose head turned slowly over to the right shoulder, and remained there until guided back with the finger placed against the chin, and returned immediately in the same manner when the finger was removed.

With regard to the *course* of chorea, Dr. Dickinson said that, unlike the specific fevers, it had no tendency to end within a definite time, and was not generally fatal. The cases which do end fatally were said to be almost always those in which the movements produce excoriations on the prominent parts of the body which they would not allow to heal, and perhaps also keep the patient from sleep. Under these circumstances he would be found to fall into a condition which is characterised by dryness of tongue and rapid pulse, and differs only from that which results in typhoid fever in the skin remaining cool.

Dr. Dickinson professed himself unable to throw any new light on the *pathology* of this disease, other than that which might be yielded by one of the specimens he was about to show. He was inclined to attribute the cardiac complications of chorea to the hyperfibrinous condition of blood already alluded to, rather than to a genuine inflammation. They were unquestionably liable to occur, no matter from what exciting cause the disease arose, whether from fright, worms, or a loaded condition of the bowel, and whether or not it followed or was accompanied by distinct rheumatic affections.

As to *treatment*, his faith in most of the drugs of which trial had been made was very limited. Most patiants improved more or less during the first fourteen days, if merely placed in bed and kept at rest; but if within this time recovery did not take place, medical treatment must be resorted to. First it would be well to give a sharp purgative of calomel and jalap to ensure the removal of sources of intestinal irritation, and then one of the metals which experience had shown to be of value. Of these the most useful were the sulphate of zinc and iron in some form, the former applicable to florid and robust patients, and the latter to those who are anæmic. The administration of the salt of zinc should commence in doses of one grain every six hours, which should be increased by a grain daily up to from twenty to twenty-five grains. When thus administered the emetic effect was avoided, and the majority of the cases to which it was applicable would recover. But if, on the contrary, the case should become chronic, a nervine tonic would be demanded, and of these the best were arsenic and strychnia; with these might be advantageously combined change of air and gymnastic movements, and in those cases which presented an hysteric element, the sudden application of cold, as, for example, by means of the shower-bath. Speaking of music, which has been said to be of value in the treatment of the Tarantula dance, Dr. Dickinson said that the connexion existing between the sense of hearing and the action of the voluntary muscles suggested an explanation of its possible value, and he regretted that it had not yet been fairly tested in this country.

Of the many other drugs which had been suggested for the treatment of chorea, Dr. Dickinson said that there were none he could recommend. Sufficient trial had not been made of chloral in the hospital to enable him to pronounce upon it. Antimony certainly had a tendency to effect a marked diminution in choreic movements, if given in large doses; but as chorea, when fatal, proves to be so through prostration, he considered the use of so lowering a remedy must be unadvisable. Several of the fatal cases which had come under his cognisance had been treated with that metal. Belladonna he had seen given in daily quantities ranging up to seventy grains of the extract without any beneficial effect. He had no faith in either conia or bromide of potassium; and valerian was only of use where chorea is complicated with hysteria.

After the lecture, Dr. Dickinson exhibited a number of microscopic specimens taken from a child who had died of chorea. They showed that the pia mater, the corpus striatum, the pons Varolii, the velum, and the spinal-cord—in fact, the entire cerebro-spinal nervous system—was loaded with blood-corpuscles; but the most interesting was a specimen which presented a small cavity in one of the anterior cornua of a portion of spinal cord taken from the lumbar region, the tissues at the circumference of the cavity were softened and broken, and the cavity itself was crowded with blood-corpuscles.

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ST. GEORGE'S HOSPITAL.

CASES UNDER THE CARE OF DR. JOHN OGLE.

Tumour of the Abdomen.—A highly interesting case of tumour below the right costal cartilages, in the situation of the left lobe of the liver, which attained the size of a hen's egg, and at the same time softened and became superficial. It was opened, and was found to be an abscess. The patient was a woman, aged thirty-nine years, who had only been aware of any swelling in the affected part nine days, but who three weeks previously had had an attack of pain at the pit of the stomach, with sickness. On admission, the liver appeared to be greatly enlarged, and the hard swelling in the abdomen seemed to be continuous with the liver, having a roughened and somewhat nodulated base, which appeared to be the liver itself. Speculations as to whether the swelling was due to a hydatid, or to abscess, or to carcinoma of the liver, or to deposit superfical to the liver, existed. The tumour quickly increased in size, and became fluctuating; it was opened, proving to be an abscess, containing 4 oz. of pus. No bile or shreds of liver-tissue existed in the pus removed, and no "hooklets" were found. The patient is doing well.

Case of Delirium Tremens, with Congestion of the Liver, and Spasmodic Stricture.—The patient was a footman. He had slight but decided jaundice, passed much bile and lithates in acid urine, and every now and then had spasmodic stricture (to which he had never been subject), requiring the catheter, as hot fomentations and baths gave no relief. Chloral was given with good results at bedtime; and alkalies, diuretics, and subsequently vegetable bitters, were given. No stimulants of any kind were administered until the urine and skin showed that the hepatic congestion was being removed, when a little brandy was given with his food, which at first consisted of milk and beef-tea, with light puddings, subsequently of fish, and then meat. After a time the urine became alkaline, and contained a little albumen. He has become very much thinner since his illness began, but otherwise he is now rapidly convalescing. It was found on several occasions that the temperature was high, being 102·2°, again 101·8°, a little latter 100·4°, and now it is normal.

Hemiplegia on the Right Side of the Body, Face and Tongue; Memory defective; Speech affected.—The patient was a woman aged thirty-two, who had had a child five years before marriage. Dr. Ogle suspected syphilis to be the cause of the disease; but no proof could be obtained. It appeared that she had been paralysed since a fall which she had in getting out of bed six weeks before admission, after which she lost her speech for some time. She suffered greatly from pain in the head, which did not seem to yield to bromide of potassium, but which under the use of the bichloride of mercury, with iodide of potassium and bark, and blisters to the nape of the neck (one of which was dressed with mercurial ointment), has, after fluctuations, gradually given way, the last report being that it had quite gone. For some days after admission the temperature in the arm on the paralysed side was much lower than that on the other. Thus at the right elbow it was 95·4°, whilst at the left it was 95·6°; at the right hand it was 82·2°, whilst at the left it was 85·2°, there being *no* difference in the temperature of the axillæ. The temperature of the right knee was two degrees lower than that of the left. At the present time the two sides are much more equal in temperature, and the power in the right limb has been much regained; but speech has not improved.

Severe Case of Acute Rheumatic Fever.—This was a first attack in a patient, aged twenty-three, a brewer's man. Throughout the attack the heart remained quite free and healthy. The case was treated by diluents and opium in some form or other every three or four hours; mainly crude opium, with or without a small quantity of calomel to guard the secretions, but sometimes morphia or Dover's powder. Later on, a little brandy was given from time to time. At the end of ten days the opium was discontinued, and simple effervescing draughts, with neutral citrate of ammonia, were substituted, as thirst was so intense. He has been gradually improving, and on the eighteenth day after admission, and the twenty-second or twenty-third day of the attack, he walked across the ward. Under quinine he is now rapidly convalescing.

Two cases of Epilepsy.—One case was that of a woman subject to pain in the forehead and lower part of the abdomen, and who associated her epileptic attacks (which appeared to be also partly of an hysterical nature) with irregularity of the catamenia. She was treated by gentle aperients, aloes, and steel, and generous diet.

The other case was that of a man who, whilst in the West Indies, often experienced giddiness. The seizures were always preceded by *cramps* and *numbness* in the left foot, which, as he said, gradually crept upwards until he became unconscious. Dr. Ogle was about to adopt the use of the tight ligature round the left leg on the approach of the attacks, but the patient had to leave the hospital owing to bad behavior. He was treated with bromide of potassium (fifteen grains) thrice a day, with much relief to his uncomfortable feelings and mitigation of attacks.

Case of a boy aged fifteen, who had had symptoms of a slight attack of *pleuro-pneumonia* a week previously. On admission, from his appearance and history phthisical tendencies were suspected, and this idea was strengthened by the respiration at the apex of the left lung in front being "jerky," and the inspiration "rough." In a very few days, however, the symptoms and all physical signs disappeared, and he went out of the hospital.

Two cases of *syphilitic sore-throat* quickly yielding to iodide of potassium and the use of the gargarisma æruginis. One of these cases was much reduced, being extremely emaciated, decidedly phthisical, covered by dark coppery eruptions, and at first was threatened with suffocation from ulceration of the fauces and œdema of the glottis. The patient has now returned to his work.

Case of a painter, with *blue lead gum-line*, and excessive *pain* in the back, legs, and shoulders. Greatly relieved by warm baths, iodide of iron, and faradisation of the painful parts.

Case of *consolidation of the lung*, apparently from tubercular pneumonia, with pleuritic effusion. Much improving under cod oil, quinine, and good diet, with iodine pigment over the chest.

Case of an anæmic, nervous, hysterical young woman, in the habit of throwing up blood, which had been considered to be hæmoptysis, as she had cough. The voidance of the blood always gave relief to the pain which she suffered from in the chest and shoulders. On examination of the chest, no indications of disease of the heart or lungs were found, and it was soon apparent that she suffered from hæmatemesis, with constipation. Under the use of suitable diet, occasional doses of blue-pill and rhubarb, with hydrocyanic acid and soda, with milk and lime water, sickness and vomiting ceased, and she is now taking steel with aloes and valerian, having a firm and regular pulse.

We saw a case of *saccharine diabetes* treated by Dr. Ogle with lactic acid, in accordance with the views of Dr. Cantani, of Naples. In this case the temperature is not lower than it should be, nor are the respirations more infrequent; on the contrary, they are more frequent both during waking and sleeping hours.

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MOORFIELD'S OPHTHALMIC HOSPITAL.

CASE OF RENAL RETINITIS, WITH PECULIAR HISTORY AS TO SCARLET FEVER.

(Under the care of Mr. Hutchinson.)

A case of some interest in reference to the connexion between scarlet fever and renal disease came under notice at Moorfields a short time since. A young woman, who asserted that she was in good health had been brought by her mother from Jersey on account of failure of sight. She could only read No. 16 J. (i. e., large capitals), and the history given was that her sight had failed rapidly during last July.

On examination with the ophthalmoscope the conditions found were characteristic of renal retinitis. In each eye the retina in the neighborhood of the optic disc was everywhere infiltrated with white deposit, which wholly concealed the choroid, and which almost completely buried also the trunks of the retinal vessels; there were a few smaller linear apoplexies; the quantity of lymph effusion was unusually great. The diagnosis of the renal disease was of course at once made, and the patient's previous history was then more carefully investigated. It should be stated that her face was somewhat pale and puffy-looking. Although at first she had stated that she was in good health, she admitted, on being questioned, that she had for some months lost her appetite and suffered from nausea; for a considerable period in the summer she had had constant morning sickness; she had had no dropsy. It appeared that in May last her brothers and sisters (all younger than herself) had been ill with scarlet fever; she, however, although she had never had it, and although she adopted no precautions against contagion, did not, as far as was known, take the disease. Both she and her mother stated positively that she had never at any time either rash or sore-throat. It is to be remembered that the scarlet fever was in the family in May and that the retinitis began during July. On subsequent examination of the urine it was found to contain a considerable quantity of albumen with many granular and a few hyaline casts. There was probably some hypertrophy of the heart, and also a slight bruit with the second sound. Thus a question of considerable practical importance is raised as to whether this patient did really, without knowing it, suffer from the scarlet fever poison three months before the occurrence of her symptoms of renal and retinal disease.

In adverting to this point, Mr. Hutchinson expressed his opinion that patients not unfrequently pass through the exanthemata without knowing it, the specific blood changes occurring without any rash on the skin. He stated that it was very common for patients to become the subject of constitutional syphilis, with the liability to tertiary phenomena, who had never had any secondary symptoms, and he instanced the fact that many children appear to acquire immunity as regards the different exanthemata without having suffered from them, as one in favor of the belief that they do really sometimes pass through them without its being known. Nor was there, he observed, anything unusual in the occurrence of severe sequelæ after a very mild, or even altogether doubtful, attack of a specific fever. Some of the worst forms of diphtheritic paralysis occur after the mildest cases. It was true that in this instance the interval between the suspected exanthem and the occurrence of the retinitis was unusually short, for retinal changes in connexion with kidney disease occur for the most part in advanced stages. They were, however, by no means closely restricted on this point, and all authorities agree that they are sometimes found with the large flabby kidney. There being no other evident cause for the renal disease, it appeared, as Mr. Hutchinson thought, most probable that it was really due to what might be considered an abortive attack of scarlet fever.

The treatment of the retinitis resolved itself into that of the kidney disease. Mr. Hutchinson prescribed small doses of the sesquichloride of iron, and advised the patient to restrict herself as much as possible to a regimen of milk. As she came from a Jersey farm, she would at home be in a position to give Professor Niemeyer's recommendation on this head a fair trial, and she expressed herself as very willing to do so.

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ST. MARY'S HOSPITAL.

A CASE OF PSEUDO-TONSILLITIS.

(Under the care of Dr. Handfield Jones.)

L. T——, aged twenty, had been taken ill a week before admission with a sore throat, which had become so severe that she could swallow nothing but liquids. When she was asked to show it, the neck muscles were thrown into rigid spasm, the tongue was raised, and behind it nothing could be seen but the uvula projecting forwards between the approximated upper extremities of the tonsils. She was ordered to take twenty minims of tincture of belladonna every hour for three times, and afterwards every two hours, and to inhale steam. On the fourth day she felt giddy and her face became flushed; the belladonna was consequently withdrawn. She had, in the twenty-four hours, passed only six ounces of urine, of a specific gravity of 1023, not albuminous, but depositing copious lithates. On the fifth day the tonsils, as seen internally, were not at all diminished in size, but the finger applied externally to the angle of the jaw could detect scarcely any swelling. Various medicines were then tried, with very small results. Thirty-five days after admission the following note was made:—"She does not mend at all. Her voice is squeeky; her throat is still sore, as she says it has been on and off ever since she had the scarlet fever three years ago. She opens her mouth but little, and all that can be seen is the uvula pushed forwards over the base of the tongue; the tonsils cannot be seen." On introducing his finger, Dr. Jones found that he could move it freely from side to side between the tonsils, and formed the opinion that they were but little, if at all, enlarged, but merely drawn into close approximation by spasm of the superior constrictor of the pharynx. Up to this time the patient had kept her bed and been very "invalidish." The intelligent ward-sister declared that she "could not make her out at all." A draught containing five grains of carbonate of ammonia and a drachm of tincture of valerian in infusion of valerian was then ordered to be taken three times a day. Three days later the patient was up and about the ward, and seemed much better; but on examining the throat in a good light Dr. Jones found the uvula projected forwards just as on former occasions. By means of a little careful training having taught the patient to breathe in and out while showing her throat, he contrived to get a view of the back of the pharynx, and satisfied himself that, though they were rather too red, the tonsils were really very slightly enlarged. In a few days more the patient left the hospital in an improved condition.

The appearance of the patient's throat was extremely deceptive; and Dr. Jones admitted that he might not have apprehended the actual condition of the parts if he had not called to mind an observation he made on another patient some considerable time previously. In that case he saw the tonsils distinctly drawn together by muscular action whilst the patient was under examination. He did not for a moment believe that this woman was lending herself to an hysterical tendency, but attributed her symptoms to a hyper-excitable condition of the nerves and muscles of the neck and throat, which was aggravated by some catarrh of the mucous membrane.

The toleration of large doses of belladonna, and the inconsiderable amount of toxic effect which they at last produced, added interest to this case. Hyperæmia of the head and face, a very moderate elevation of temperature, slight cerebral disorder, and great diminution of the urinary secretion, were the principal changes that ensued. The dysphagia was lessened, but by no means removed. The drug had no diuretic, but quite the contrary effect.

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ST. BARTHOLOMEW'S HOSPITAL.

(THE OUT-PATIENT DEPARTMENT FOR WOMEN'S DISEASES.)

On the 15th April we paid a visit to the department devoted to the special treatment of diseases of women. The attendance of patients was very numerous, and Dr. Greenhalgh and Mr. Godson availed themselves of the abundant materials thus afforded to give clinical instruction, and to demonstrate the use of mechanical appliances in this class of ailments. Among the diseases we noticed were pelvic hæmatocele, pelvic cellulitis, ovarian tumour, vascular tumour at the orifice of the urethra, fibroid tumours of the uterus, polypi, carcinoma, hypertrophy of the cervix, vesicocele and rectocele, and the various displacements of the uterus. These latter perhaps formed the larger proportion of the cases. Where the displacement was unattended with inflammation, treatment by mechanical support was adopted. A pessary which appeared to be in great favor for treatment of cases of retroversion, flexion, prolapsus, and procedentia, was Dr. Greenhalgh's modification of Hodge's well-known apparatus. Three of its sides consist of metal wire covered with soft india-rubber; but the narrow side, which is intended to rest against the anterior wall of the vagina, consists of soft india-rubber only. Another modification of this pessary, designed for cases of vesicocele, was provided with bars of soft india-rubber passing transversely between the long sides of the quadrilateral. Both these instruments appeared to possess advantages over the old form of pessary, and, according to the accounts of the patients, answered exceedingly well. There were several cases of fibroid disease, of which the prominent symptom was profuse hæmorrhage; these were all treated with ergot of rye, on which drug, combined with some other remedies, reliance was almost entirely placed to arrest uterine blood-discharges. For a case of mechanical dysmenorrhœa, in which the constriction was at the internal os and caused considerable obstruction to the introduction of the sound, a laminaria tent was introduced, in order that, by dilatation of the passage, the next monthly discharge, which was expected to occur in the course of two or three days, might be rendered less painful. The introduction of the tent was effected by means of a modification of Dr. Barnes's tent-probe, which has been prepared under Mr. Godson's direction. The novelty of this instrument consists in the point intended for the reception of the tent being connected to the stilette by means of a screw which permits of rotation, and of a small hinge-joint immediately above the screw, which gives a free lateral movement. The combination of these two contrivances confers on the point and the tent attached to it all the range of movement of a ball-and-socket joint, and enables the tent to find its way easily and without violence through the cervix in cases in which the direction of its channel differs from that of the axis of the instrument as it has to be held by the operator. It possesses over Dr. Greenhalgh's forceps, on which the tent can only move from side to side, the additional advantage of permitting the introduction to be made without the aid of a speculum.

Medical Societies.

JUNE—JULY.

MEDICAL SOCIETY OF LONDON.

Mr. Gay, President, in the Chair.

Professor Erasmus Wilson, F.R.S., read a paper "On Lichen Marginatus" (the Lichen circumscriptus of Willian). Diagrams were handed round showing the concentric rings and segments of rings which this disease formed. The disease was an inflammatory affection of the follicles—a "folliculitis." A cluster of follicular papillæ formed the ring, a line or two broad. It had a tendency to spread in a serpiginous way. There was usually severe itching, and in some cases a gummy exudation. The details of two cases were very exactly given by Mr. Wilson. One was that of a man who had the disease chiefly about the perineum, and who seemed to have got well on a course of mercurial inunction and tonics. The other was a most inveterate case, and occurred in a lady, affecting the whole body; temporary improvement only was obtained. The disease is known as the "dartre of Hindostan, or Indian ringworm." It prevailed also in China; and Mr. Wilson had had put into his hands by Mr. Grey, a communication from Mr. Thomas Powell, medical missionary in the South Pacific Islands,—an account of the disease as it was met with in the Island of Samur, having been imported thither by two men who arrived in a boat from one of the neighboring islands. Mr. Powell had called it herpes desquamans. Lately Mr. Powell had discovered an insect of the order Muscidæ in all stages of development on the skin of persons attacked. The application of the tincture of iodine had been useful in two or three cases. Mr. Wilson then went on to say that he considered the disease to be between eczema and lichen ruber, and Willan regarded it as an eczema; but as follicular inflammation was the pathognomonic character of the disease, it seemed to Mr. Wilson more allied to lichen, and hence he called it lichen marginatus. In speaking of treatment, Mr. Wilson alluded to the experience of Mr. Nicholson, with whom he agreed as to the value of inunction of mercurial ointments and solutions, while tonics and the ferro-arsenical mixture were given internally.

Dr. Tilbury Fox admired the excellent delineation conveyed by the author's description; he had seen the disease prior to the papillary stage. The term lichen marginatus would embrace all forms of Indian ringworm. Firm friction with a mixture of iodine and colorless oil of tar had proved a good plan of treatment in the hands of Dr. Fox.

Dr. John Pennefather read a short paper "On Obstructions in the Eustachian Tube, and their Removal." Referring to the anatomy and functions of the Eustachian tubes, he disputed the opinion that the Eustachian tubes are opened only during deglutition; and declared that the opening was always effected during the movement upwards by the velum; that the use of the ducts was to admit air to the tympanum, and allow its passage from the ear, so as to regulate the tension of the drum of the ear; and that they have nothing to do with the conveyance of sonorous vibrations. The admission of air through the tubes was an excellent means of diagnosis; but it was not a means of curing *disease*, though it might remove temporary obstructions, as from catarrh. He then noticed obstruction from cold in the head by viscid secretion found in the Eustachian tube; and this might be relieved by closing the mouth and expiring. Another cause was enlarged amygdalæ, and a tumefied state of the mucous membrane; and, in the latter case, the use of Politzer's bag was injurious, because it admitted cold air and distended the swollen parts. The chief reliance in such cases must be the use of internal remedies that act on the mucous membranes and increase their secretion, and the local use of chlorate of potash spray through the nasal passages.

A paper was then read by Mr. W. F. Teevan, B.A., F.R.C.S., on "The Pathology and Treatment of Stricture of the Urethra." Mr. Teevan proceeded to point out the importance of detecting a stricture in its earliest incipiency, and that as a rule it was but the fault or neglect of the patient that commencing stricture was not detected and treated. It might be laid down as a rule that if a patient had suffered from a gleet for several months there was always some important pathological alteration, the most serious of which was contraction; and the ball-staff would reveal to us the slightest diminution of the calibre of the urethra. He then pointed out the varieties of stricture and the mode in which they might severally be readily diagnosed, and proceeded to dilate upon the necessity of a greater attention to the use of those means which have for their object the restoration of the canal of the urethra to its normal calibre by dilatation. There was only one method which could be called *the* treatment for stricture—viz., gradual dilatation by the French flexible bougies. He condemned the surgery which did not give sufficient prominence to this particular point; in fact, Mr. Teevan's most able paper was directed to upholding gradual dilatation as against any other treatment of stricture in the vast majority of cases.

Mr. MacCormac considered the majority of strictures could be well treated by gradual dilatation. If the profession carried out Mr. Teevan's indications regarding the early detection of stricture there would be no necessity for any operative procedure.

Mr. Gant used the dilator in a few exceptional cases, but preferred treating the majority of strictures by gradual dilatation.

Mr. Davy had witnessed various methods of treating strictures, and he certainly preferred forcible rupture. He considered the bougie à boule a most valuable instrument.

Mr. J. D. Hill approved of the forcible rupture of strictures, and practised it. He had, however, had two deaths after using the dilator.

Mr. Henry Smith was strongly opposed to the use of the forcible dilator, as its employment was followed by relapses and death. He was entirely in favor of gradual dilatation.

Dr. Richardson then read the paper of the evening, entitled "Some further Additions to Therapeutics; Organic Bromides, Metachloral; with a Note on Sulphur Alcohol." The author first described the method of research in therapeutics, which consists in following up modification of certain of organic compounds by modification of the elementary composition of the compound. He then introduced some new medicinal bromides—viz., bromide of quinine, bromide of morphia, and bromide of strychnine, together with combinations of the same. Bromides are best administered in the form of syrups, each drachm of the syrup containing—in the syrup of the bromide of quinine, 1 grain of the bromide of quinine; in the syrup of the bromide of morphia, $\frac{1}{8}$ of a grain of morphia; and in the syrup of the bromide of strychnine, 1–32 of a grain of bromide of strychnine. Compounds of the syrups of the bromide of quinine and morphia, and of quinine, morphia, and strychnine were also useful. In each drachm of these, the same proportion of dose—viz., 1 grain of quinine, $\frac{1}{8}$ grain of morphia, and 1–32 grain of strychnine—was maintained. Dr. Richardson had found the bromide of quinine of great service in syphilitic ulceration; he had obtained most valuable results from frequently repeated doses of syrup of bromide of quinine and morphia in cases of neuralgia; and in a case of diabetes the syrup of quinine, morphia, and strychnine had been signally successful. The bromide of quinine he believed the best preparation in cases of remittent or intermittent fever. Dr. Richardson next brought forward bromal hydrate. It was less soluble than chloral hydrate and produced more convulsive action; and, on the whole, he did not think it could at all replace the last-named substance. He then passed on to anhydrous chloral, placing before the Society a specimen of pure anhydrous chloral, and by the addition of pure water it produced chloral hydrate. Chloral itself is a fluid caustic; it abstracts water rapidly, and might, he thought, be usefully employed as a caustic in some cases where soft fungous growth required to be removed. Chloral hydrate absorbed would be found to exert an after-sedative influence. A specimen of metachloral was then shown—an insoluble white substance made by exposing chloral hydrate to sulphuric acid. This substance is isomeric with chloral, and when treated with alkaline is resolved into chloroform and formiate of the alkali employed. Administered to inferior animals, it seemed to act as a gentle narcotic, being, probably, slowly decomposed in the body, It may yet prove of service in practical medicine. Lastly, Dr. Richardson exhibited a specimen of sulphur alcohol (C_2H_6S), in which sulphur replaces the oxygen of ordinary alcohol. He detailed a number of interesting facts bearing on the action of this agent, dwelling especially on the mental depression it produces even when taken in very minute quantities. The alcohol is exhaled by the breath as it passes from the bodies of animals, and communicates to the breath peculiar odors, like the odor met with in wasting diseases. From this fact the author drew a suggestion for a new line of research in diagnosis—viz., the detection of organic sulphur compounds, derived from the blood, in the air expired from the lungs by diseased persons. Sulphur compounds liberated in the alimentary canal seemed harmless—i. e., were not absorbed; but it was now quite certain that when some of them are actually introduced into the circulation, even in minute quantities, and are diminishable by exhalation from the lungs, they produce muscular debility, feebleness of the heart, and mental depression. We may therefore infer that the formation of sulphur compounds within the circulation from diseases, might account for some examples of excessive temporary prostration for the cause of which we have as yet no satisfactory explanation.

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CLINICAL SOCIETY OF LONDON.

Dr. W. W. Gull, President, in the Chair.

Dr. Handfield Jones read a paper "On Two Cases of Chorea," in both of which he gave complete urinary analyses. The conclusions which he drew from these cases were—1. That during the height of the chorea the amount of the urinary excretion was much above what it was when the malady had ceased. 2. That the urea excretion during the chorea period was enormous, being no less than 10 grains per lb. of body weight, the normal amount being 3 or 3·5 gr. for an adult. During convalescence the urea amount fell to 3·9 grains per lb. of body weight. 3. The phosphoric acid excretion varied like the ureal, being no less than 60 grains during the acme of the disease, and only 14·5 during convalescence. The mean amount adopted by Dr. Parkes is 48·8 grains for an adult. 4. The uric acid was in fair amount during the acme of the malady, but became nil when recovery was established. 5. That an increase of 17 lb. in weight coincided with this great lessening of excretion and cessation of the neurotic disorder.

Dr. Anstie considered that the exact kind and quantity of food taken should be known, in order that the nitrogenous matter might be closely estimated. He also wished to know whether meat was taken freely during the acute stage, and at the time when urea was passed.

Dr. Jones replied that there was at this period no disgust of animal food, and that the patients were fed on the ordinary meat diet of the hospital.

Dr. Broadbent remarked that diet might not have influenced the first case, in which an early analysis was made, and thought that chorea was the result of a local affection of certain parts of nervous centres in the neighborhood of the corpus striatum and optic thalami, and was sometimes due to capillary embolism.

Dr. Greenhow thought that chorea was usually due to some general constitutional condition of the system, and gave as an example the case of a girl most of whose relatives had, at one time or other, choreal tendencies.

Dr. Fagge failed to recognise the theories enunciated with the fact that chorea was sometimes caused by fright, and remarked that, according to Drs. Grabham and Langdon Down, idiots were not liable to chorea.

Dr. Broadbent and Dr. Anstie made some further remarks.

Dr. Buzzard mentioned the case of a woman formerly under his care, who, during the process of gestation, suffered from tremors produced by fright, and whose child was subsequently the subject of chorea.

The President, having asked if the author believed that the treatment adopted helped decidedly to cure the patient, was answered in the affirmative, and concluded the discussion by remarking that there were, clinically speaking, two forms of chorea. The one occurred before the age of fourteen, and usually did well with very simple treatment, care being taken that the food is prepared properly, and given cleverly and at proper intervals, so that the habit of "bolting" the food common to choreal patients may be avoided. His own experience went to prove that chorea was oftenest fatal in girls of from sixteen to eighteen years of age.

Dr. Broadbent read particulars of two cases of Paralysis of the Soft Palate, resembling diphtheritic paralysis. The first, a boy aged three, was brought as an out-patient to St. Mary's Hospital on September 10th, 1866. In July a bucket of water had been thrown over him, and he had had a cold and sore-throat. Afterwards the voice was noticed gradually to become nasal and articulation imperfect, and for some days all fluids taken had returned through the nose. He was also weak on his legs and liable to fall. The soft palate was pale, flabby, and motionless. The medicine ordered was cod-liver oil, and steel wine; sulphate of strychine, one-sixtieth of a grain; with dilute phosphoric acid, five minims, in water, three times a day. The improvement was rapid, and on October 27th the patient was quite well.—In the second case, that of a girl aged six, admitted out-patient May 23rd, 1870, there was not only paralysis of the soft palate, but also loss of power in the laryngeal muscles, and great weakness of the lower extremities. The voice was nasal; fluids returned through the nose, and there was danger of suffocation when solid food was swallowed. When she spoke a great rush of air preceded the production of sound, showing the imperfect adaptation of the vocal cords; and when the fauces were irritated there was neither sensation nor retching. The treatment was similar to that adopted in the previous case, and recovery took place, but much more slowly. The patient was discharged on August 29th. These cases were in many respects, if not altogether, similar to the cases of paralysis following diphtheria, and the interest attaching to them relates to the question whether paralysis of this character is a specific disease or a form of nervous paresis capable of being produced by other acute disease, or by debilitating influences generally.

Dr. Weber commenced the discussion by remarking that three cases had come under his notice in which paralysis of the soft palate had occurred more than fourteen days after the commencement of inflammation. All these cases recovered without any special treatment. It might be a reflex phenomenon, but it was remarkable that in these cases, as well as in those of true diphtheria, considerable interval occurred between the primary attack and the subsequent paralysis.

Dr. Silver said he had at present under his care a case somewhat akin to that narrated by Dr. Broadbent. The patient came into the out-patient room, walking with difficulty, yet quite able to move his feet; he took off his hat, and sat down. His face had a curious expression, being slightly drawn to the right, and the muscles about the mouth were so paralysed that the saliva dribbled from his mouth. He had ptosis of the right eyelid, and there was dilatation of the right pupil. Being asked a question, it was found that he could not speak; and, on further examination, it was found that he was quite unable to swallow. His palate was paralysed, and his tongue could hardly be protruded beyond the teeth. He was admitted an in-patient, when it was found that he had no power of retaining his urine, although there was neither paralysis nor anæsthesia of the lower extremities. He was fed by the stomach-pump, and he has now somewhat improved, and can swallow imperfectly, but cannot, though perfectly intelligent, utter a word. There was antecedent right hemiplegia, and a history giving suspicion of syphilis. This case was allied to those described by Trousseau, but was not progressive in its nature.

Dr. Fagge related brief particulars of two cases bearing upon Mr. Broadbent's paper.

Dr. Anstie, in remarking that affections of this kind afforded immense scope for discussion, said that, according to his experience, mumps was the only non-diphtheritic throat affection in which the muscles of the soft palate lose their power.

The President remarked that in diphtheria the respiration is usually involved. He had seen affections of the cord follow non-diphtheritic affections of the throat. The examination of fresh cords in such cases by the microscope revealed a dull-white porcelain texture, with very little grey substance visible, loosened nerve-tissue, and no exudation or other change.

Dr. Wiltshire made some remarks, and Dr. Broadbent briefly replied.

Dr. Broadbent read notes of a case of Paralysis of the Ophthalmic and Superior Maxillary Divisions of the Fifth Nerve, of the Fourth Nerve, and of the Branch of the Third to the Levator Palpebræ on the right side, from syphilitic disease at the base of the Cranium. The interest of the case consisted in the rarity of paralysis of the fourth nerve, and in the illutration of anatomical diagnosis furnished by the simultaneous implication of this nerve and of the two upper divisions of the fifth. The patient, a farrier, aged forty-one, became an out-patient at St. Mary's Hospital on May 9th, 1870. He had been ailing for eight months, and under treatment nearly all that time. At first he had had pain in the right side of the head, worse at night, and for four months had had loss of sensation in the right side of the forehead and face, together with ptosis and double vision. The skin of the entire region of distribution of the ophthalmic and superior maxillary divisions of the fifth nerve was insensible to all kinds of impressions. The eyelid could be raised only to a slight extent by the action of the occipito-frontalis. But though the double vision was very marked, there was no perceptible squint, and the pupils of the two eyes were equal. On more careful examination it was found that the two images were not on the same level, one being below and to the right of the other; and subsequently, by causing the patient to look at an object in various ways, so that the eyes were successively directed upwards, downwards, to the right, and to the left, it was clear that the double vision was due to paralysis of the fourth nerve, the two images receding when the eyes were directed downwards, approaching each other when they looked upwards, the pseudo-image going far to the right but coming to near the level of the image proper when the patient looked to the right, and getting immediately beneath it when he looked to the left. There was no acknowledged syphilitic history, but the sallow earthy complexion of the patient, a tubercular eruption near the right eyebrow, and facts in his family history, were considered conclusive as to the syphilitic origin of the disease; and iodide of potassium was given in doses of six grains, quickly increased to twenty grains, the result being rapid disappearance of all the symptoms. The lesion was considered to have been a node or gummy tumour of the fibrous structures surrounding the ophthalmic and superior maxillary divisions of the fifth nerve, in that part of their course between the Casserian ganglion and the exit of the latter through the foramen rotundum. Here the fourth nerve lies close to the ophthalmic and sometimes joins it, so that a single lesion would cause the loss of sensation and the double vision; it does not, however, appear how it could give rise to the ptosis.

Mr. Brudenell Carter said that it was generally advisable in such cases to unite the double images by means of prismatic spectacles, as a means of giving comfort to the patient while he was under the neccssary curative treatment. In paralysis of the superior oblique, a prism, with its base outwards and downwards should be placed before the affected eye, and balanced by a plane glass on the other side of the frame.

Dr. Buzzard thought the subject under discussion of the highest importance, for there was nothing in medicine more remarkable than the rapidity with which this form of paralysis of cranial nerves cleared off under the influence of large doses of iodide of potassium. As had happened in the case related, the syphilitic nature of certain nervous diseases was being continually overlooked, and often be believed because it was supposed that some secondary symptoms must necessarily have manifested themselves if the case were really one of tertiary syphilis. His experience was entirely opposed to this. In a very large proportion, a majority, perhaps, of syphilitic nervous affections, secondary symptoms had never occurred. As regards treatment, he found that it was necessary to continue the use of iodide of potassium for weeks or months after the subsidence of the local paralysis in these cases, or the symptoms were liable to recur, often with increased severity.

Mr. Earnest Hart remarked that the affections of nerves due to syphilis were most eccentric in their character, and that such cases were best treated with large doses of iodide of potassium.

Mr. Hulke said that the greater number of these cases were syphilitic; that they recur frequently if the drug is given up.

Mr. Haward suggested that possibly these forms of disease might be due to diseased structures through which the nerves passed, rather than to affections of the nerves themselves.

The President remarked on the importance of recognising the effects of syphilis; that the skin did not always show results of the disease; that the condition of the bones sometimes aided diagnosis, as also the odor of the patient, and a certain grey aspect peculiar to such patients. Smell is frequently valuable as an aid to diagnosis.

Dr. Broadbent agreed with all the speakers as to the frequency of syphilis in connexion with affections of the cranium. He had not noticed ulcers of the mouth in connexion with the disease, and had not found it necessary to combine mercury with the iodide of potassium in the treatment. He thanked Mr. Carter for his suggestions, and adhered to his own diagnosis.

Dr. Tilbury Fox brought before the notice of the Fellows seven cases of ringworm of the arms and hands, of an extensive and severe form, in seven men, in whom the disease had been contracted from a white pony whose body was studded over with patches of tinea tonsurans, having analogous characters to those seen in ordinary ringworm of the scalp. The disease occurred only in those men who had groomed the pony: in three men brought to Dr. Fox by Dr. Drage, of Hatfield, and who were the ordinary grooms of the owner of the pony; and in four others, attendants of the Royal Veterinary College, where the pony had been sent for treatment. The patches of ringworm were chiefly in the front of the arms; they were large, more infiltrated than usual, and, in one case, markedly herpetic. In one of the other cases the central portions of the circular patches were studded with minute pustules. Dr. Fox attributed the severity of the disease to the large amount of fungus of a very luxuriant kind being sown at one time upon the arms of the men. In one man parasitic sycosis was produced. Hairs taken from the pony, exhibited under the microscope, were seen to be ensheathed in spores and mycelial threads, both of which invaded the shaft of the hair; and scales taken from a patch on the arm of one of the men were also placed under the microscope, and showed the mycelium of the fungus, which Dr. Fox pronounced to be the trichophyton, sprouting in all directions throughout the epithelial scales. Dr. Fox stated that he had never seen the transmission of ringworm from the horse to man before, nor had Prof. Spooner in his forty years' experience; but he referred to the history of an epidemic which occurred some years ago amongst horses and mules in the valley of the Borne in Savoy, and which was reported upon by Prof. Papa, in which a disease similar to that in the present seven cases was observed to be communicated to man from the horse. Bazin had also noticed the same occurrence. He remarked, however, that the transmission of tinea from the ox and calf to man was common enough. He concluded by remarking that the seven cases brought under the notice of the Society illustrated the fact that ringworm of the surface varies considerably in aspect, according to the amount and rapidity of growth of the fungus, from a mere erythematous desquamating patch (so-called parasitic pityriasis) to a pustulating surface resembling and liable to be mistaken for an eczema; the two extremes being connected by transitional forms, represented by an abortive herpes, a well marked herpetic patch, or a desquamating circular area bounded by an herpetic edge; the occurrence of so much effusion as is necessary to produce herpetic vesicles being dependent upon the amount of irritation set up. Veterinarians who asserted that "ringworm" was common in a horse, and might be communicated to man, had not brought forward any proof that the disease which they styled "ringworm" was really parasitic, and he had no doubt many non-parasitic eruptions of animals were classed under that term. The disease in the white pony referred to was, as proved microscopically, undoubted tinea tonsurans.

The Chairman asked if the degree of virulence of the disease was the same in man in similar cases where it had been communicated from the lower animals?

Dr. Duffin commented on a case that had come under his notice, in which a cat had propagated the disease to children.

Dr. Fox said that in the cases described by Professor Papa the disease assumed an exaggerated form in certain of the cases.

Mr. Cox (a veterinary surgeon) said that ringworm was common in horses, and he believed it was often communicated to man.

Mr. Pritchard, one of the Professors of the Veterinary College, averred that in his own experience he had never seen the transmission of ringworm from horse to man, nor had Professor Spooner in his forty years' experience.

Mr. Cooper Forster closed the discussion by mentioning that his own groom, some four or five years ago, had ringworm which was undoubtedly caused by the presence of a horse in his stable suffering from the same disease.

Dr. Duffin read notes of two cases of Roseola Variolosa that had come under his notice. In the first, some six hours after a severe rigor, a thickly-set papular rash appeared. It was strictly confined to the surface of the abdomen and the inside of the thighs, thus occupying a triangular space, with its base upwards. The rash blanched on pressure. The patient presented the signs of severe febrile disturbance. After forty-eight hours the eruption became purpuric, and at the end of an additional twenty-four hours uniformly confluent. The regular papules of small-pox then appeared on the face. The patient had two imperfect vaccine marks on his arm. The case ran a moderately severe course up to the period of the secondary fever, when the disease aborted. In the second case, a papular rash, in all respects similar to the other, appeared on the arms and thighs of a girl, twenty-four hours after severe rigors. The rash here also became purpuric on the third day, and on the fourth a modified small-pox eruption occupied the face. This patient had also been vaccinated. In reliance on the descriptions of Hebra and Trousseau, Dr. Duffin contended that where these limited rashes occurred they were pathognomonic of the appearance of small-pox, the diagnosis of which would be much accelerated. In vaccinated subjects they had little prognostic importance, but in the unvaccinated they were extremely formidable. No proper small-pox rash seemed to invade the purpuric area, which gradually faded as the disease evolved.

Dr. Hilton Fagge confirmed Hebra's description of the rash preceding variola, had remarked the localisation of the rash, and believed that, when occurring in the situations described, it assisted the diagnosis of small-pox. He also referred briefly to three cases of purpuric eruption preceding small-pox, all of which proved fatal.

Dr. Habershon said that in such cases the diagnosis of small-pox was very difficult; that the roseoloid eruption was not confined to the abdomen, but in some instances extended along the hands and arms.

Dr. Rasch related particulars of a case of small-pox preceded by a rash that in many respects resembled scarlatina.

Dr. Broadbent had seen six or eight cases that at the outset simulated scarlatina, and in which, twenty-four hours after the commencement of the illness, hæmorrhagic spots appeared about the conjunctiva and elsewhere. In five or six other cases the outer side of the thigh was most thickly studded, and there was also a considerable amount of passive hæmorrhage from the kidneys, and the mucous membrane of the large intestine.

Dr. A. P. Stewart related particulars of a case in which, twelve days after the rigor, a rash appeared on the arms and throat, which, after slight desquamation, was followed by a pustular eruption on the hands and feet, with pain and swelling. He was not aware of any similar case in which the small pox had been determined in so brief a period.

After some remarks by Dr. Sutton and the President as to the difficulty of diagnosis in the cases adduced,

Dr. Duffy, in reply, remarked that he had been very careful to restrict his paper to circumscribed morbilliform and scarlatinaform rashes, as he was well aware of the terrible importance of the hæmorrhages which sometimes complicate the more general scarlatiniform eruptions. The diagnosis in some of these instances he thought might be assisted by the patched distribution and greater depth of the redness. He had recently seen another instance where the purpuric rash had occupied the triangular space on the thighs and abdomen.

Mr. Christopher Heath read notes of "A Case of complicated Stricture of the Urethra, treated by Mr. Syme's Operation for Impermeable Urethra." Mr. Syme's description of the operation was first referred to, and the case was related as follows:—A discharged soldier, aged twenty-eight, upon whom external urethrotomy had been performed in India, had an impassible stricture of the urethra, complicated with perineal fistulæ, and an old false passage of considerable length. The patient had been under careful treatment for six months before he came under Mr. Heath's care; but no instrument could be passed into the bladder, nor was Mr. Heath more successful after several careful trials. He therefore adopted Mr. Syme's suggestion, and introduced a director through one of the fistulæ into the urethra behind the stricture, then passed a steel staff along the urethra and made it meet the director, and thus enter the bladder. Instead of then cutting upon the staff and dividing the stricture, as suggested by Mr. Syme, Mr. Heath preferred to pass Holt's dilator along the urethra and split the stricture; and this was successfully accomplished. The patient made a good recovery, and was taught to pass his own instrument, which he continues to do to the present time.

Mr. Maunder, remarking on the general interest of the paper, said that patience, perseverance, and gentleness were required in the treatment of all these cases, and that forcible catheterism was objectionable. He objected to the operation described, would in such a case have performed perineal section, and should be glad to know from Mr. Heath the condition of the patient twelve months hence.

Mr. Teevan remarked that the performance of external urethrotomy without a guide was not so difficult as supposed. He objected to a catheter being left in the bladder after any of these operations, as it only tended to set up irritation and promoted the formation of a fistula. The catheter ought only to be passed every other day.

Mr. Barwell saw no particular difficulty in the operation described, and thought that Mr. Maunder had magnified the obstacles unnecessarily.

Mr. Cooper Forster, adverting parenthetically to the long discussion that had ensued, and to the remarkable difference of opinion that existed on this point between surgeons north and south of the Thames, thought Mr. Heath's treatment right and proper. If an instrument cannot be introduced into the bladder through the natural channel, an artificial road must of course be made. The urethra is naturally dilated behind the stricture, and if operative procedures were confined strictly to the median line, no great harm could ensue. He did not believe in the "bristle" scheme; but

Mr. Maunder retorted that as, according to Mr. Heath, urine flowed, there must have been a passage.

Mr. Haward spoke in favor of puncturing the bladder in cases of impervious stricture.

Mr. Croft said that Mr. Heath's case was doubtless unique, and demanded a special style of treatment, but that it was his practice to lay open everything. in which plan he had been invariably successful.

Mr. Reeves gave brief particulars of two severe cases that had come under his notice.

Mr. Heath replied that the operation he had performed was devised by Mr. Syme and not by himself; but he thought that in the discussion some confusion had arisen between this operation and Mr. Syme's perineal section, which was better called "external urethrotomy." He must say that he thought this latter operation was not so simple or innocent a proceeding as had been stated, for it was well known that Mr. Syme himself had lost cases from hæmorrhage.

Mr. Teevan related the treatment adopted in a case of Retention of Urine from Impassible Stricture. The patient, aged forty-six, had suffered from severe organic stricture for ten years, and for retention with dribbling for nearly one year. Complete retention at last set in when he was taken to hospital, where, after an unsuccessful attempt to pass a catheter, he got relief from a hot bath and medicines. He afterwards came under Mr. Teevan for his complaint, who tried for half an hour, without success, to pass the smallest catheters and bougies. Another trial two days later met with no better result. The following afternoon complete retention set in, and at 4 o'clock the next morning Mr. Teevan, after a quarter of an hour's trial, succeeded in passing the No. 1 French guage, smallest filiform bougie. On its withdrawal, ten minutes afterwards, a fine stream of urine began to flow, and continued for an hour, when nearly three quarts of urine had passed. The patient was afterwards cured of his stricture by gradual dilatation with the olivary bougie. Mr. Teevan remarked that he had called the case retention from impassable stricture, as no catheter could be passed for the relief of that retention, and he had brought it forward to show what the bougie could accomplish in an apparently hopeless case for its successful employment. The occurrence of the retention facilitated the passage of an instrument for the relief of that retention, and for the commencement of that treatment of the cause of the retention, which was carried out by gradual dilatation, and he would, therefore have been unwise to have missed the opportunity presented by adopting such temporising means as the hot bath, &c. It was also clear that, in this case, the bougie had obviated any recourse to an operation. Another inestimable advantage gained by the bougie was, that the whole treatment had been carried out without the loss to the patient of an hour's work.

Mr. Reeves had tried these bougies, and had found that they often doubled up.

Mr. Maunder had the highest opinion of the value of these French bougies. Experience and skill obviated the occurrence of the incident mentioned by Mr. Reeves.

Mr. Christopher Heath was afraid that, although a filiform bougie might prove successful in Mr. Teevan's hands, yet most house-surgeons would probably fail with it.

Dr. Broadbent read a paper "On Phosphorus as a remedy in Skin Diseases," in continuation of a series of cases published in vol. ii. of the Society's Transactions, in which manganese and nickel were given as remedies for anæmia. If the action of remedies and poisons on the human organism is due to their chemical properties, substances allied chemically ought to have an analogous physiological and therapeutical influence, or the diversity in their action ought to be explicable on chemical grounds. In other words, chemical groups should form therapeutical groups. The investigation suggested by these considerations is as follows:—Given a distinct and well-ascertained physiological or therapeutical effect, can results in any way similar be obtained from the chemical allies of the body producing it? The group of which phosphorus is the head chemically, and of which arsenic is the chief representative in therapeutics, affords an opportunity for the application of this test. Its four members, phosphorus, arsenic, antimony, and bismuth, stand in the order named in regard to equivalent numbers, physical properties, and chemical energy; and their compound with other elementary bodies form analogous series. Excluding bismuth, which, from its feeble affinities and tendency to form insoluble compounds, may be considered inert, there is in the mode of action of phosphorus, arsenic, and antimony, as poisons, and in the tissue-changes they induce, a parallelism as remarkable as that of the chemical properties of these bodies, both in the energy and in the character of the physiological effects. The opportunity for bringing out further therapeutical parallelism is furnished by the well-known curative action of arsenic in certain classes of skin disease, such as some forms of eczema and psoriasis. Cases of this kind were taken, and, instead of arsenic, phosphorus was given. Two grains of this substance were dissolved in oil, and from three to seven drops of the solution were given, usually in mucilage, three times a day after meals. Six cases of eczema were related, in all but one of which the phosphorus was decidedly beneficial. The most striking case was that of a girl aged twelve years, who had had eczema of the scalp, extending down upon the forehead and face, for three months. She took first four, and afterwards five minims of the phosphorated oil for three months without any external application, when it was discontinued on account of sickness, the eruption having almost disappeared. Three weeks later it was resumed, and after a fortnight all that remained was slight redness and scurfiness of the scalp. With the aid of creasote and red oxide of mercury ointment the skin ultimately became healthy. The cases of psoriasis were also six in number, two out of which proved rebellious, not only to phosphorus however, but to arsenic, and all treatment, general and local. In one case, that of a man aged twenty-two, psoriasis had been present more or less from the age of four or five; the patches were large and numerous, and had an inveterate look. He took the solution of phosphorus in doses of from five to eight drops. On two occasions the psoriasis completely disappeared without the use of any local application, and a third time with the aid of creasote and ammonio-chloride of mercury ointment; but his attendance was irregular, and during the twenty-one months that he was more or less under observation he contracted first gonorrhœa and then syphilis (aphrodisia from phosphorus?), and he ceased to attend at the hospital while the evolution of cutaneous syphilis in a "dartrous" subject was being watched. The object of the communication was not to bring forward a new remedy for skin diseases, but to exhibit one more analogy between phosphorus and arsenic. If phosphorus, however, were as manageable and as little disagreeable as arsenic, it would probably, according to Dr. Broadbent's experience, be found superior in efficacy.

Dr. Althaus remarked that phosphorus was best given in the form of a pill, that from one-fortieth to one-fourth of a grain could be taken without difficulty, and that, according to his experience, the medicine may be given with other drugs, without any objectionable results.

Dr. Langdon Down thought that in order to test the remedy fairly, parallel oxides to those of arsenic should be prescribed.

Dr. Wiltshire asked if Dr. Broadbent had tried the amorphous preparation of phosphorus.

Dr. Frederick Simms recorded his belief in the beneficial effects of phosphate of iron in combination with arsenic.

Dr. Broadbent, in reply, said that the notes read were intended to refer exclusively to the treatment of cutaneous diseases; that antimony often did good; that combinations of oxygen and phosphorus rendered the latter inert; that he had given amorphous phosphorus in two or three grain doses, but had found it useless.

Dr. Frederick Simms read notes of a case of left hemiplegia with total loss of the right eye. Mary S——, thirty-one years of age, was admitted into the West London Hospital on September 12th, 1870. No history of syphilis or of any acute illness. Has had several healthy children. On February 19th, 1870, after a short railway journey, labor came on at full time, with severe flooding, and ended in four hours by the delivery of a still-born child. An hour after the patient was unconscious, having previously had severe pain in the right side of her head. Recovery ensued after some hours, and was followed by acute aching pains in the left arm and leg, both of which she was able to move for at least an hour after the return to consciousness, when they became perfectly paralysed. Gradual and permanent rigidity supervened, with startings and involuntary movements of flexion and extension, so that the hand became bent upon the limb, and could not be kept extended. Memory was much impaired. Three days after delivery active inflammation of the eye set in, resulting in total blindness. The speech was never much affected. She now has the ordinary symptoms of hemiplegia, is able to walk with some little help, uses the muscles of the thigh to lift and advance the leg, the ankle-joint being fixed and immovable. There is headache on vertex and right side. Sensation of palsied limbs normal. No pain in the diseased eye. General health good. No albumen in the urine. Heart sound. Mr. Fairlie Clarke reports that the diseased eye is quite lost, the globe being shrunken and very soft, the lens opaque, and the pupil drawn downwards as if involved in an ulcer of the cornea. No active inflammation is going on at present. Improvement was confined to increased power over lower limb, disappearance of headache, and to a gain in general health and condition. The patient was able to walk without help, but the foot was drawn up by the tendo Achillis. The treatment consisted of iron, iodide of potassium, and good diet. The head symptoms disappeared under the use of bromide of potassium and iron in combination. Faradisation of the affected limbs was tried repeatedly, and as often discontinued as the head symptoms increased, when the feeblest current was used. The illness was attributed to embolon, a clot having formed in the left heart directly after the termination of labor, and travelled upwards as far in the internal carotid artery as the origin of its ophthalmic branch. The loss of consciousness was the immediate cause of this obstruction, and the subsequent symptoms were due to red softening of brain-substance and to cicatrisation.

Dr. Buzzard inquired if sensibility of the right side of the face was affected, and remarked that any interference with the fifth nerve is liable to result in ulceration of the cornea.

Dr. Broadbent thought that recovery in cases of embolism of the cerebral artery was rare, that the loss of the eye might have been the result of ulceration of the cornea from exhaustion, and that the rigidity of the paralysed parts was not a common occurrence.

Mr. Brudenell Carter thought the condition of the eye pointed to the results of some profound nervous or vascular lesion, and not at all to ulceration of the cornea from exhaustion consequent on loss of blood. In the latter case staphyloma and increased tension would have been more probable than softening.

Dr. Simms replied briefly. He feared that his patient would drag on a miserable existence for some time, and opined that the clot which was probably causing the mischief had travelled up to, and become lodged at, the junction of the internal carotid with the middle cerebral artery.

Dr. Buzzard read a paper, for Dr. Royston Fairbank, of Lynton, "On the Use of Digitalis as a Topical Remedy." The mode of application of digitalis adopted was to make a decoction of the dried leaves in the proportion of a small teaspoonful to half a pint of boiling water, or a drachm of the tincture might be used in the place of the leaves. Flannels wrung out in the decoction were applied around the inflamed parts in the usual way. Another mode of applying the drug was to foment the part affected with hot water, and afterwards to rub in gently a little of the tincture. Dr. Fairbank had used with great success these local applications of digitalis to cases of acute inflammation of the elbow- and knee-joints, and also to a patient suffering from severe inflammation of the breast.

Dr. Buzzard also read a paper, by Mr. Lawson Tait, "On a case of Encephaloid Cancer of the Femur treated by Electrolysis." The patient was a female, aged thirty, who suffered from encephaloid disease of the right femur. Subcutaneous injections of morphia, in quantities of twenty and twenty-four grains, were necessary to relieve her terrible agonies. Hydrate of chloral was also given in doses of from sixty to one hundred grains, but it was found that, unless combined with morphia, or with the administration of chloroform, it failed to induce freedom from pain. Mr. Lawson Tait remarked that the chloral hydrate was an excellent adjuvant to opium and chloroform. In this patient a much smaller dose of chloral was required if morphia had been previously given, and a smaller dose of chloroform was needed to produce anæsthesia if the patient were already under the influence of chloral. Ultimately he tried the effect of electrolysis on the tumour; he inserted (under chloroform) six needles into the tumour, and applied the current for ten minutes, and three days afterwards he repeated the operation for fifteen minutes. The result of these operations was to give the patient great immunity from suffering. Mr. Lawson Tait remarked that had the electrolytic treatment been applied earlier, he was certain it would have saved much pain.

Mr. Brudenell Carter thought that in cases such as that described it was well worthy of consideration whether the division of the nerve would not have been a proper proceeding to relieve the excruciating pain.

Dr. Althaus, in reply to Mr. Thomas Smith, said that in fourteen cases treated by electrolysis the tumours, whatever they might have been, disappeared, but that the two most decidedly successful cases were those of cancer of the breast.

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PATHOLOGICAL SOCIETY OF LONDON.

MR. J. HILTON, F.R.S., President, in the Chair.

MR. WEEDEN COOKE exhibited a specimen of Medullary Sarcoma of the Cranial Bones, associated with scirrhus of the breast, in an old person aged sixty-three; and a second case of Scirrhus of the Brain with Aphasia, associated with scirrhus of the breast, which was removed by operation. In the first case the disease began five years since. There was a family history of cancer, and both parents and aunts had died of phthisis. The post-mortem appearances were briefly as follows:—The calvaria showed a deposit of soft lobulated medullary substance on its external table, lying between it and the tendinous aponeurosis of the occipito-frontalis muscle, covering the junction of the right parietal and frontal bones, and a portion of the temporal to the extent of some three inches by two inches. On the inner side of the calvaria there was likewise a soft medullary growth, which had penetrated the dura mater, and was somewhat larger than that on the external table. Its mechanical pressure had caused absorption of the membranes and a portion of the grey substance of the brain, the white matter appearing as though a clean slice had been made to the extent of a square inch. In the second case, the tumour in the breast was first observed six months before, and had increased rapidly recently owing to a bad cold. It was removed on the 25th of May, and the patient was discharged quite well on the 9th of July. Subsequently slight paralysis appeared on the right side in the month of August, but passed off, leaving the patient with violent headache and some defect of speech. This latter symptom increased, and the hemiplegia of the right side returned as the case went on, and death ensued. Two deposits were found imbedded in the substance of the left hemisphere of the cerebrum. The deposits were hard, quite characteristic of scirrhus, and each about the size of a pigeon's egg. The site of the anterior deposit—the third left frontal convolution—was noteworthy in connexion with the aphasia observed in the later stage of the case, which was complete. These two cases, said Mr. Cooke, served to open up again the question of the local origin of cancer. He observed that if it could be ascertained positively that cancer had its origin in one primary deposit, of what advantage would this knowledge be to the patient or the surgeon. Surely as soon as one pregnant germ is deposited, which, of course, must be utterly undiscoverable by either patient or surgeon, the second procreation may at once be carried away, and the whole area of the body become infected. One idea, Mr. Cooke said, was suggested by these two cases, which is corroborated by the history of a host of others—viz., that hereditary decay is interchangeable in its effects. Tuberculosis is recorded in the history of both these cases; and, although one had to meet the objection that every tenth person dies of tuberculosis in these isles, and therefore that nearly all diseases may be more or less associated with it, much observation compelled the author to the conclusion that hereditarily these diseases, phthisis and cancer, do beget one another.

Mr. W. Spencer Watson read the report of a case of Spindle-celled Sarcoma of the Leg, for Dr. John S. Walker, of Hanley, Staffordshire. Tumours had already been exhibited on a former occasion from the same patient, and the one now brought forward had recurred for the fifth time. It was a bleeding fungoid mass of the size of a large walnut, and was situated over the upper end of the tibia. Before removal of the growth on the last occasion, Dr. Walker tied the femoral artery in Scarpa's triangle, with a view to prevent the recurrence of the growth. The wound left after removal healed rapidly, and had not recurred at three months date from the operation. The patient, a lady of thirty, was able to walk well, and was in all respects well on the 6th March, 1871. The tumour was referred to the Morbid Growths Committee.

Mr. Henry Morris exhibited an interesting specimen of Strangulated Femoral Hernia, with reduction *en masse*, from a woman aged seventy-eight, admitted into the Middlesex Hospital on Jan. 11th last. On the 8th, whilst coughing, she felt something give way in the right groin, and, during the night and the next morning, had a great deal of pain at the lower part of the belly, and vomited repeatedly. On the 10th she applied for relief, and attempts were made to reduce the hernia by taxis, with the aid of the application of ice, but without success. The next day taxis was again employed without success, and she was sent to hospital. On examination, the hernia was found to be of the size of a large pigeon's egg. It gave no impulse on coughing, but the woman was sick, the vomiting being stercoraceous. Chloroform was given, and Mr. Lawson, before cutting down upon the hernia, attempted its reduction, but without result. After freeing all constrictions about the neck of the sac, the tumour was gently pressed, when it at once disappeared. But the symptoms of strangulation of the gut continuing, Mr. Lawson next day reopened the wound and made a careful examination of the parts, when he found that his finger passed into a pouch which was not part of the peritoneal cavity. In this pouch he detected a small tumour, but no intestine was felt. It was now seen that the reduction previously effected had been *en bloc*. The neck of the sac still constricting the contained gut, a free incision was made in Poupart's and Gimbernat's ligaments, and the tumour hooked up from behind the pubes into the canal. The sac was laid open, the stricture divided, and the deeply congested coil loosened and returned into the peritoneal cavity. The sac was then ligatured and cut off. Some hæmorrhage occurred, and the patient unhappily sank in thirty-six hours. At the post-mortem, on passing the finger through the wound it entered a large cavity reaching upwards, behind the right rectus, below into the pelvis, outwards toward the iliac fossa, and inwards behind the bladder; the lower end of the rectus muscle was lacerated and projected into it from above. The back of the pouch was formed by peritoneum, subperitoneal fat, and fascia, with the bladder below, which organ, with the uterus, was pushed backwards towards the sacrum. There was no peritonitis, but the ileum, lying free in the peritoneal cavity, was congested in two places. One part was deep-red around almost the entire circumference, except where it had been strictured, at which spot it was soft and yellowish. The interesting points about the case of hernia were these: (*a*) That the reduction *en bloc* did not arise from complete rupture of the neck of the hernial sac, as is often the case in femoral hernia so reduced, nor from dilatation and subsequent rupture of one side of the neck, as is commonly the case in reduction *en masse* in scrotal and inguinal hernia, but from simple separation of the entire sac and surrounding peritoneum from the subjacent tissues. (*b*) The extreme facility with which the peritoneum was everywhere separated from the rest of the wall—pointing to a pathological and not to a mechanical cause of this reduction—reduction *en bloc*. (*c*) The great resemblance which the subperitoneal tissue in the femoral region presented to omentum—likely to lead to the supposition that an omental sac, and not a detached peritoneal one, has to be dealt with in such cases.

Dr. Payne exhibited some interesting specimens of Cancerous Growths in the Veins and Endocardium, apparently secondary to disease in the lower vertebræ. There was thrombus of the inferior vena cava, containing small cells and nuclei colored by carmine, the bodies of the adjoining vertebræ being cancerous, together with the liver. The endocardial growths were found on both sides of the heart. Dr. Payne believed that the springing up of the growths in the endocardium could not be explained by the migration of cancerous particles, but by infection of the blood-current by fluid derived from the seat of the thrombus.

Dr. Douglas Powell thought that the endocardial growths were beneath the endocardium; but from this Dr. Payne dissented.

Mr. Arnott did not think it necessary to raise the question of the migration of actual cancerous particles, since many cases had occurred where secondary deposits could not be explained by this occurrence.

Mr. Hulke was also unable to see, supposing that an infecting fluid was poured into the blood-current, why certain spots and not others should become the seats of cancerous growths; whereas, if secondary deposits arose from the migration of solid particles, it was easy to understand the fact of one place being affected and another not.

Dr. Payne likewise showed a specimen of Diseased Suprarenal Capsules from a case of Addison's disease. With the exception of some slight discoloration of the axillæ, the only parts of the skin discolored were the penis and scrotum; the pia mater of the cord in its upper part was darkened by deposit of pigment. The buccal cavity, Dr. Payne said, in answer to a question from Dr. Cholmeley, was not examined for discoloration.

Dr. Fagge mentioned the fact of discoloration of the pia mater having been observed at Guy's.

Dr. Greenhow said the pia mater was free from pigmentation in some cases. He regarded the disease as a neurosis, and the pigmentation was always intensified after exacerbations of the disease.

Dr. Cayley had seen the buccal mucous membrane discolored without any other symptoms of Addison's disease being present.

The President observed that pigmentation of the skin of the scrotum and penis was common in old people.

Dr. Clapton exhibited an Atrophied Cerebellum taken from the body of a female aged thirty-eight, and weighing thirty-eight ounces, being itself hard and deficient in nerve-tissue. Both sides were symmetrical; the pedicles were intact. When admitted into St. Thomas's Hospital the patient exhibited a very peculiar manner and unsteadiness of gait. She was pregnant, and died suddenly. It was ascertained that the patient was well up to the age of four, when she had measles, which seemed to start the development of the disease from which she subsequently suffered. Up to fourteen years of age she could not feed herself or walk well.

Dr. Dickinson referred to similar cases in which paraplegia was present.

Dr. Fagge mentioned a case of Atrophy of the Cerebellum, the result of embolism.

Dr. Broadbent inquired if the patient could speak or write after the age of fourteen, to which Dr. Clapton replied in the affirmative.

Mr. Hulke was of opinion that if the condition of the cerebellum were due to atrophy the skull would not have adapted itself to the cerebellum as it had done.

Mr. Marcus Beck exhibited a Myeloid Tumour of the Head of the Tibia, which was entirely involved in the disease. The joint was, however, free; and the cartilages were unaffected. Mr. Beck read a full account of the microscopical characters of the tumour. The patient was a sailor, thirty-one years of age, who had some time previously received an injury to the part. The limb was amputated.

In answer to the question of return of the disease raised by the President, Mr. Weeden Cooke did not think that myeloid disease generally returned.

Mr. Hulke was of opinion that the more the spindle-cell element was present, the more likly the tumour was to return.

OBSTETRICAL SOCIETY OF LONDON.

Dr. Braxton Hicks, F.R.S. President, in the Chair.

Dr. Brunton read the particulars of a case in which the entire ovum was expelled at the seventh month of gestation, and the child rescued alive, although it must have been born at least fifteen minutes before being taken out of the membranes. Dr. Brunton thought the case supported Sir James Simpson's practice in placenta prævia, of extracting the whole placenta before the birth of the child.

Dr. Madge said with regard to the absence of hæmorrhage from the placenta surface, the case was only an additional proof of the correctness of the views he held on the subject. The mere separation of the two layers of decidua—serotina and uterina—did not necessarily give rise to hæmorrhage. This only occurred when those membranes, from various causes, commenced to break up. The probable explanation of the child being alive was that as the fœtus in utero had somewhat of an aquatic existence, it was still in its own element, and for awhile not far removed from intra-uterine conditions.

Dr. Heywood Smith said the child's circulation continued as if it had been still in utero, with the substitution merely of aëration by the atmosphere acting directly upon the uterine aspect of the placenta for the maternal blood.

The President agreed with the explanation given by Dr. Heywood Smith, that as the placenta was exposed to the oxygen of the air the circulation was kept up. The exposure to cold, might at the same time, lessen the demand for oxygen.

Dr. Wiltshire said the case had medico-legal bearings. Dr. Cleveland had within the last fortnight been called to a lady at full term, whose child and placenta were expelled with scarcely more than a hæmorrhagic stain on the bed-linen.

Dr. Grigg said that the practical lesson from Dr. Brunton's case was to take care, should the placenta be expelled before the birth of the child, to expose its uterine surface to the air.

Editorial.

IRRITABLE HEART.

Everyone is aware that affections of the heart are very common among soldiers. Various causes have been assigned for this at different times; and the medical members of the Government Committee appointed in 1864 to inquire into the subject expressed an opinion as to the mode in which they supposed such diseases to be produced in the army. After pointing out the changes in form and capacity of the chest, and the physiological conditions of the heart and lungs attendant upon strong physical exertion, they showed how the dress and equipment acted injuriously upon the immature frame of the young soldier, by tending to destroy the equilibrium between the powerful action of the heart and the capacity of the lungs to receive the blood propelled into them by the heart, thus, as a necessary consequence, leading to an imperfect action and disease of that organ. In fact, it was considered that by far the most important factor in the production of the relative excess of heart disease in the military over the civil population was to be found in the difference of dress—in the weight of the soldier's knapsack, and the constriction of the chest by his belts and accoutrements. As the subject happens to be one that has forced itself upon our notice, and obtained some consideration at our hands, we offer no apology for making some remarks upon it in connexion with an excellent paper by Dr. J. M. Da Costa in the *American Journal of the Medical Sciences* for January of the present year. We may premise, then, that, although we fully recognise the injurious effects of the soldier's dress and knapsack, we are disposed to think that their influence in the production of cardiac disease has been somewhat exaggerated, and not by any means so clearly worked out as might be wished; at the same time, we consider that Dr. Da Costa has fallen into the opposite error of underrating their effect in the production of the "irritable heart." However, to proceed with a brief *précis* of his practical article.

On the establishment of military hospitals in the large cities of America, Dr. Da Costa became visiting physician to one in Philadelphia, and he soon recognised a peculiar form of functional disorder, to which he, in common with many other observers, gave the name of "irritable heart." Owing to the interest he took in the subject, the medical department at Washington furnished him with the means of studying the disease on a large scale. From the experience of the American war, and from that of other wars, it is certain that this form of disease has proved a fertile source of inefficiency and invaliding; and it is probable that a large number of these cases were, when Cullen's nomenclature was in use in the British army, really included under "morbus cordis" and other terms, some of them not even having any reference to the heart at all. Dr. Da Costa's observations extend over upwards of three hundred cases. He points out that the men who suffered from this irritable heart complained of inability to march, owing to shortness of breath, dizziness, and palpitation, accompanied with pain and a sense of oppression in the chest; that in a large number of cases there existed a previous history of some digestive disturbance; that, although the men might appear to be in sound condition, a persistently quick action of the heart was observable, which proved to be a chronic complaint, and one very difficult of cure; and that some of these cases of functional derangement ultimately developed into cases of cardiac hypertrophy. We agree with him in thinking that pain is an almost constant symptom, and that it is not due to intercostal neuralgia. Although the shortness of breath or oppression on exertion is generally complained of and is sometimes severe, it is a curious fact that the increased action of the heart does not give rise to increased frequency of breathing, the pulse-respiration ratio being one exactly the reverse of that of pneumonia. Dr. Da Costa cites cases in illustration where the pulse was 124 and 146, and the respirations only 25 and 26 respectively in the minute. The frequency of the pulse is much affected by position, being much less in the recumbent posture; and Dr. Da Costa states that he has had the opportunity of noticing that the effect of acute maladies in these cases was to render the pulse slower instead of quicker. The physical signs of this affection are very peculiar. The heart's impulse is quick and jerky, often irregular, and sometimes intermittent. The first and second sound are similar in character—short, sharp, and almost metallic in tone; and it is difficult in many cases to determine accurately which is first and which the second sound. Murmurs are generally not met with, but when present they are commonly systolic, just above the apex, and unconnected with venous hum or other signs of anæmia. Dilatation of the heart is rarely present; but the disordered function leads occasionally to organic disease (hypertrophy). Dr. Da Costa, in analysing the causes of this affection, dwells upon the antecedent conditions of ill-health in his cases—among which may be enumerated fevers, chiefly typho-malarial, 17 per cent.; diarrhœa, 30·5 per cent.; hard field service, marching, &c., 38·5 per cent. He points out that the cases arose in all arms of the service—infantry, cavalry, and artillery. The fact that they did not belong exclusively to the first is conclusive, he thinks, that the form of accoutrements was not the exciting cause of the affection; although the waist-belt, and especially the knapsack, undoubtedly had something to do with aggravating the trouble, there was no proof that they produced it. It may be inferred from what we have already stated, that we hold the contrary. And we find some corroboration of our view in Dr. Da Costa's statements, that fully two-thirds of the cases happened from the sixteenth to the twenty-fifth year; and that if the question were considered with reference to the number of persons under twenty years of age in the ranks, these would be found to have furnished the largest percentage. This points to the influence of pressure on the yielding, immature frame of the recruit, with the imperfect ossification and development of the bones and cartilages of his chest. Experiment will, moreover, enable anyone to demonstrate what is the effect of a "double" on the healthy soldier in heavy marching order. The pulse and respiration are disproportionately rapid for the amount of exertion; and there can be no mistake as to the signs of an embarrassed action of the cardiac and pulmonary organs. Here, then, we may discern conditions, as it seems to us, that stand in the relation of exciting causes to cardiac disease. Sphygmographic tracings of the radial pulse of a number of young soldiers have also shown that more or less marked dicrotism was present in them; which indicates that the heart is overtaxed. It is true that cardiac diseases are common among troops that do not wear packs, as in those serving in India, and in the Coast Brigade, Royal Artillery. Still the proportion of heart diseases in the cavalry of the British army is only about one-third of what it is in the infantry. We concur in considering that the best explanation as to the nature of the malady is that which refers to the influence of a disordered innervation on a heart that has been made irritable by over-action and excitement; and we are disposed to think that the affection is attributable to a combination of causes—the use of strong tobacco and alcohol, by growing lads especially, seminal disorders and venereal excesses, syphilis, malaria, exposure to the sun, &c. One and all of these may be enumerated among its predisposing causes. The treatment found by Dr. Da Costa to be most efficacious embraced the following: rest, digitalis, belladonna, &c. The treatment is never a short one; and the question arises whether it would not be better for the Government to discharge such cases at once. Dr. Da Costa, on political almost as much as on medical grounds, thinks not. According to our experience they are among the most difficult and wearisome cases that the military surgeon can be called upon to treat.

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WINTER DISEASE AND ITS TREATMENT.

It is an odd kind of consolation, but there is some comfort in the fact, that we are far more likely to die of other diseases than of the one disease of which everybody is speaking, of which we are sick of hearing, and against which we all have the means of protecting ourselves. Four times as many people die just now of bronchitis and pneumonia as die of small-pox; at any rate this was the proportionate mortality of these diseases according to the report of Dr. Ballard and the returns of the deaths registered in Islington during the four weeks of January. There were 118 deaths from affections of the respiratory organs, as against 28 deaths from the much-dreaded epidemic that is receiving such universal attention. There were twice as many deaths from tubercular disease alone as from variola. There were nearly as many deaths from diseases of the organs of circulation as from small-pox. In these facts we have the clue to the other duties devolving upon practitioners at this time, and in regard to which it is now our intention further to speak.

We have already spoken of the chronic diseases affecting the chest. We need not revert to that class of cases further than to say that they really make up the bulk of the diseases of the respiratory organs that end life. To read the older writers one would think that acute disease was the thing to be dreaded; but little experience is needed now to show that, barring cases of the zymotic class, life is endangered generally by chronic maladies—maladies that have recurred more than once, or been more or less continuous for a length of time. Perhaps it would be more proper to say that the class of cases which imperials life is the subacute class. It is really not common to meet with fatal cases of inflammatory disease beginning sharply with a decided rigor at a given hour, and running a quick course. A delicate child of tubercular or rachitic diathesis, and liable at all times to a little catarrh, goes on very well till it lapses into some degree of the febrile condition, and greater embarrassment of the breathing function, but having neither a very high temperature nor extremely embarrassed respiration. Death happens generally in such cases by slow asphyxia and exhaustion. Or an elderly person, who is seldom without some degree of cough in the winter season, gets an unusually bad cold, with extra cough and elevated temperature. The case at first sight may not be urgent, but it does not get getter. It goes on from day to day without improvement, or getting slightly worse, till bronchitis becomes more extensive or intense, or passes into pneumonia, the breathing gets worse and the patient dies. The important point, even in regard to these fatal subacute cases of chest-disease, is, that they are not sthenic; they will bear no active treatment. Occurring in the infantile period of life, it is almost as important to consider the diathesis of the child as the local affection, and all through the disease to uphold the power of the patient. This does not necessarily mean the administration of stimulant; but it means the administration of nourishment and the avoidance of remedies that lower vitality. In many of the fatal infantile cases, the subacute or acute attacks of chest-disease come on after or as a part of measles or whooping-cough. Under these circumstances it is the more necessary to remember that depressing measures are out of place, and sure to be injurious. In the diseases of the respiratory organs occurring in older people there is an equal intolerance of depressing treatment. The acuter forms of pneumonia will do perfectly well, in the majority of cases, where there is no serious organic disease and no great amount of senile degeneration of tissues, without blood-letting, and even without antimony. This has been abundantly shown by Dr. Bennett, Dr. Waters (of Liverpool), and others. Generally speaking, the acuter the disease the less fatal it is, and the more readily does it yield to sensible and simple measures, of which an equable comfortable temperature, large warm linseed poultices, and a diaphoretic saline, with a few drops of antimonial or ipecacuan wine, in the first instance, are the most important. The use of large or depressing doses of tartar emetic in pneumonia is now entirely abandoned by good practitioners, and in many cases doses of ipecacuan wine will have a markedly beneficial effect. The same remark may be made of the use of mercury. It is astonishing how an acute pneumonia with high temperature and a good deal of local pain will yield to such treatment—how the temperature will come down, the pain be relieved, and the leisure of breathing be restored. Where such results do not follow, it is doubtful whether any severity of treatment, local or general, will give relief; and it is capable of greatly exaggerating the suffering by weakening the heart. One fine point in the treatment of such cases is the administration of stimulants; and it is one which cannot be settled by any dogmatic rules. The fitness of them is to be determined by their effect on the temperature, the strength, and the comfort of the patient. If he is doing tolerably well without them, they are unnecessary and may be injurious. If he shows any indication of weakness, they should be carefully tried. It is very certain that, on the one hand, they are often administered unduly, to the great discomfort and injury of the patient; and, on the other, that they are often wrongly withheld, from false views of the nature and needs of the inflammatory process. Much will depend on the previous habits of the patient, and something on his age and constitution. If the heart and bloodvessels and the great glandular and secreting organs are pretty sound, the patient is likely to do well on a sensible and expectant treatment, characterised by no extremes. In the valuable series of cases to which we have alluded, a small quantity of wine, four or six ounces daily, was given in the course of the disease.

The climatic conditions of winter are favorable to the development of other fatal maladies besides those of the respiratory organs. It would seem the favorable time for the development of all kinds of constitutional weaknesses and tendencies to organic disease. Faults of the heart, of the bloodvessels, of the brain, of the liver and kidneys, disclose themselves more frequently and severely in winter, and make up an anxious and unsatisfactory part of ordinary medical practice. Phthisical patients are apt to break down; atheromatous bloodvessels are apt to give way, causing apoplexies, or to become hopelessly passive and distended, giving rise to fatal congestions. The whole body seems lowered by the conditions of winter, and to a certain extent devitalised. These are states over which our art has only a very slight and indirect remedial power. We cannot remove frost. What we can do is to forestall the effects of winter by good advice—to prescribe counteracting measures of food, clothing, firing, and flannel to those who betray any of the faults we have specified. Diseases in themselves slight will be rendered important by organic defects in the principal organs. It is not necessary to explain all these to the patient, who may be inclined to think that his doctor pays him a disproportionate amount of attention. But, for all that, we must be on the alert, and quick to perceive the first insidious effects of cold in disorganising or devitalising the tissues and organs of the body.

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SCIENTIFIC THERAPEUTICS.

THE able papers of Dr. Wilks "On Scientific Therapeutics," deserve notice at our hand. Anything bearing on therapeutics is interesting to practitioners; and the scientific position of Dr. Wilkes gives additional interest to any opinions which he may express. Without denying the mistakes made by men who seek to administer medicines on some principle that admits of statement, or commends itself to reason and common sense, we have no doubt of the ultimate—nay, of the immediate—advantage of the importation of a scientific spirit into the domain of therapeutics. To doubt the advantage of a rational and scientific use of medicines seems to us as unreasonable as it would be to doubt the advantage of a knowledge of anatomy, because a bone-setter occasionally does better in a case of injured limb than an educated surgeon. Everyone reading Dr. Wilks's papers must feel that there is a vein of truth running through them. It will be admitted on all hands that he does no more than justice to the importance of experience as a guide in the use of medicines. No amount of physiological or chemical knowledge in a practitioner will save him from great blunders in practice if he be unfamiliar with common forms of disease and the common remedies by which they are relieved or cured. But such a practitioner surely does not represent scientific therapeutics. He may know physiology or histology or chemistry; but he does not know disease, and the resources of the practitioner for its relief. In other words, he lacks the principal knowledge which a medical curriculum is instituted to convey. It is scarcely fair, we think, to import seriously into an argument against a scientific system of therapeutics the errors of a scientific young man who knows everything but physic. After all, this young man is in a fair way of understanding the proper uses of medicine, And that he does not know them now is probably a defect in the system of teaching rather than a fault in himself. Dr. Wilks would have made a better use of his justly great influence if he had claimed for therapeutics the same attention that is given to other departments of medical knowledge, and the same systematic and scientific study. Surely no one would wish to get therapeutics back into the old ruts in which they used to run, or rather to stick. We are sure this is not the wish of Dr. Wilks; and yet the general impression left by his papers is something to that effect. Rather than do this, we should almost prefer to see the department of therapeutics abandoned altogether, and a principle of expectancy acted upon.

There can be no doubt that therapeutics have been immensely advanced by the influence of a scientific spirit. It is only when the scientific spirit is warped or narrowed by a specialty, or entirely possessed with one idea, or unaccompanied with (to use Dr. Wilks's words) "what is called reason or common sense," that it goes wrong in practice. The most scientific physician is not above availing himself of the teachings of a true and a sound experience, even if it be that of a layman or of an old woman. Trousseau did this, and every other good physician will do the same. The common people make shrewd observations as to the uses of medicine, just as they have done in the matter of food. But there is a point beyond which medicines must be administered on scientific principles, or they will do no good or harm. Let us take an example adduced by Dr. Wilks himself—the case of an enlarged spleen. One kind of enlarged spleen everybody in the profession knows is benefited by quinine. Another kind of enlarged spleen is not so benefited. The question here is a scientific one. It is, in truth, a question of diagnosis, to be determined only by a man who has studied medicine in a scientific way. And, after all, as Dr. Wilks shows, consciously or unconsciously, throughout the whole of his remarks, the soundness or otherwise of our therapeutics turns upon the soundness of our diagnosis; and this depends, again, upon our knowledge of the whole history of the patient—not merely upon his present state, but upon the history that has led up to it. Surely therapeutics based upon such knowledge as this, and including all that science and common sense and experience can teach us of the action of remedies, is scientific therapeutics. Let us illustrate what we mean by a case which has actually happened. A gentleman of gouty habit had severe pain in the rectum, felt particularly when he tried to sit up. A physician was called in, and carried the refinement of learned diagnosis to its limit by diagnosing "gout in the rectum." It is highly improbable that the physician soiled his finger by an examination of this part. Perhaps he thought that his discernment of disease was so acute as to make this unnecessary. A surgeon, equally scientific, was called in. He used "what is called reason and common sense," and concluded that something else than gout was much more likely to be giving the rectum discomfort. Next he used his finger, and found the rectum loaded with what experience and common sense had taught him to know was apt to accumulate there. He used an enema and cured the patient. Now where here were the scientific therapeutics? With the surgeon entirely. By the use of his reasoning faculty, guided by experience and by scientific knowledge to the effect that the rectum, while notoriously apt to be the habitat of fæces, is notoriously not a favorite *locale* of gout, he formed immediately a sound opinion, confirmed it by a practical test, and was led to a mode of relief dictated alike by science and sense. Many cases of therapeutics given or suggested by Dr. Wilks mostly turn upon the question of diagnosis—such as different cases of paraplegia, caused respectively by exhaustion and syphilis. To call the man scientific who treats two such cases in a similar way is simply to misuse the adjective. He is the scientific man who takes the history of the case into consideration. And it is because we have a larger amount of knowledge in medicine—to all intents and purposes scientific knowledge—that we can discriminate two apparently similar cases, apply a different treatment to them, and give a different prognosis. Dr. Wilks tells us he has seen, during the last two years, three cases of chronic cerebral disease cured by mercury where all the ordinary nervine remedies had failed. The fact is very interesting. But Dr. Wilks will be the first to allow that this is not a scientific statement to which any meaning or value can be attached. The question is again one of diagnosis. What was the chronic cerebral lesion? Was it a syphilitic one, or one for which a scientific system of therapeutics would suggest a careful use of mercury?

Dr. Wilks does but scant justice to modern therapeutics. Referring to pneumonia, he declares the unreasonableness of treating cases of it on their own merits; and says that the attempt to do this has been the cause of all the bad therapeutics of the present day. Dr. Wilks, indeed, declares this mode of treatment to be impossible. But so far is it from being impossible, that it has been done, and done with unprecedented success. The modern treatment of pneumonia, which is founded on a consideration of both the local lesion and the vital condition of the patient, is an immense therapeutical advance, though we admit that in some hands the disrespect for some points of the old treatment, and the love of most unphysiological stimulation, have been absurd and injurious. The discrimination of cases and of the vital condition and diathesis of patients with the same local disease has given a decidedly scientific character as well as a very high success to modern therapeutics. Dr. Wilks complains of the too prevalent discarding of drugs, and praises those as the best which have come down to us from barbarous times and nations.

There is some foundation for the complaint; for there is a certain scepticism that is fashionable among the more thoughtless of young scientific men just now, which applies to drugs as to other things. But modern therapeutics have nothing to be ashamed of in the matter of drugs: cod-liver oil, quinine, chloroform, iodide of potassium, bromide of potassium, and chloral are no mean additions to the list of more barbarous drugs. Altogether, we think that modern therapeutics should be spoken of to students in terms of respect and praise; and, with all allowance for excesses and faults incident to great and enlightened changes of doctrine, the healing department of medicine stands higher than it ever did, judged by any standard that can be applied to it.

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THE SURGERY OF STRICTURE.

A discussion at the Clinical Society on a case of stricture of the urethra complicated with fistulæ in perineo, led to some interesting remarks on the treatment of stricture as practised in the different metropolitan hospitals, and it was amusing to hear how diverse was the practice of the numerous surgeons present. By the light then thrown upon the subject, let us consider what would be the treatment of a patient who found himself in the streets of London with a tight stricture giving rise to retention of urine, were he to apply to the hospital to which he happened to be nearest.

We need hardly say that at every hospital the patient would receive immediate attention, and the best skill the institution afforded in the person of the resident house-surgeon, or, if need be, of the visiting surgeon. The former will of course have formed his practice on the instruction of the latter, and for all practical purposes the treatment may be considered to be the same throughout. Catheterisation is first to be attempted, but then comes the question as to the instrument to be employed. The old wax bougie gave way thirty or forty years ago to the almost exclusive use of the silver catheter; but this, again, has been displaced to some extent by the French elastic catheter or bougie with an olive-shaped bulb at the end. Even catgut bougies appear to be favorite instruments at one London hospital; whilst a filiform elastic bougie was vaunted by one surgeon as warranted to enter any stricture with time and patience. Our own impression is that for moderate strictures the French instruments answer admirably; but that with tight strictures the silver catheter is the most reliable instrument, provided the patient is placed in the recumbent position; and the instrument can then be tied in when once the bladder is reached.

We need not follow our supposititious patient through the troubles of catheterisation, which it is always to be hoped will give relief; but, supposing him not to be relieved, the treatment to be adopted presents as many varieties as there are species of catheters. At one hospital, failing to pass an instrument, the surgeon would puncture the distended bladder through the rectum—a very safe practice, and one which has yielded excellent results, since the stricture immediately expands on the pressure of the urine behind it being relieved. At another, the distended membranous urethra would be opened behind the stricture from the perineum—a successful operation, but not easy in the hands of a tyro. At a third, the surgeon would prefer to perform perineal section, cutting on the end of a catheter and then on through the stricture without a guide —an operation most difficult of accomplishment and by no means free from danger to life, and requiring good assistants, good light, and the very highest surgical skill. On the occasion we refer to, each of these methods found warm supporters, who failed apparently to convert any of their brethren "from the error of his ways."

Even on the question of the treatment of an ordinary stricture of the urethra—whether by gradual dilatation, by forcible dilatation, by caustics, by internal or external urethrotomy—there is, we believe, no such consent among hospital surgeons as to justify the designation of any one method as the English plan of proceeding. We are far from finding fault with this; for cases, patients, and surgeons all have their idiosyncrasies, and it would probably be injurious to all parties were all practice to be brought to one uniform dead level.

Medical Annotations.

"Ne quid nimis."

ON THE MOVEMENTS OF THE INTESTINES.

In order to investigate the movements of the intestines, MM. Legros et Onimus employed a sound to the extremity of which a caoutchouc ball was attached. This was introduced through an intestinal or gastric fistula, and the movements of the alimentary canal, at the point where the ball was situated, rendered legible by a manometer to which a graphic apparatus was attached. In the majority of cases the ball was introduced through a small opening in the abdominal wall, but in some cases the intestine was exposed. In the former case the ball was subjected to the pressure of the abdominal walls and the diaphragm, the latter exhibiting itself in the form of regular respiratory variations of pressure, which were easily recognisable from the much slower variation in pressure produced by the peristaltic action of the intestine itself. For the purpose of producing electrical excitation of the gut, wires were so connected with the sound that the caoutchouc ball lay between the opposite electrodes, or the current was passed from the fistulous orifice to the trachea, or in the opposite direction to the anus, according to whether the ball was placed in the upper or lower section of the intestine. In a similar manner, the spinal cord, splanchnic nerves, and meseraic nerves were excited. The following general conclusions were arrived at. Contractions occurred at regular intervals, propagated peristaltically, or rarely antiperistaltically, which were interrupted from time to time by long periods of rest. Still more rarely, a certain portion of the canal became contracted. Contractions succeeded to one another more rapidly at the upper extremity of the intestine than at the lower. The movements of the large intestine are different in degree, duration, and form from those of the small intestine. The movements of the stomach are not so regular and uniform as those of the intestine, and those of the pylorus differ in their characters from those of the cardiac extremity. Suppression of the current of arterial blood increases the activity of the peristaltic movements; but this effect is not produced by interruption of venous current. The passage of induction currents conducted immediately through the gut causes contraction at the point where the electrodes are applied, but relaxation in the interspace between them. Constant currents cause the peristaltic movements to cease, and occasion diminished pressure (i. e., relaxation) on the caoutchouc ball, when they are passed in the normal direction of the movements; but when passed in the opposite direction they produce augmented pressure (i. e., contraction) on the ball. Irritation of the spinal cord by means of a constant current causes at first a few movements to occur, followed by quiescence. Excitation of the splanchnic nerves with induction currents increases the tension of the air in the caoutchouc ball, but induces no movements; the application of constant currents occasions peristaltic movements. Similar excitation applied to the mesenteric nerves is followed by the same result. Excitation of the central extremity of the vagus divided in the neck stops the intestinal movements, and diminishes the tension. Excitation of the peripheric extremity is followed by no effect. Constant currents applied to the vagus scarcely have any influence on the intestine, but stop all movement of the stomach. Mechanical excitation applied immediately to the gut causes relaxation, which is followed by vigorous contraction. Ice-water causes contraction; warm water, or solution of common salt, increases the activity of the movements, as do also croton-oil, ipecacuanha, and small doses of atropia; morphia renders them slower. Strychnia causes contraction of the intestine coincidently with the general convulsions.

THE EYE OF THE MOLE.

Various and conflicting have been the statements both put forth and received regarding the organs of sight of the mole; but at last the truth, or at all events the position nearest to it which has yet been attained, has been arrived at through the careful researches of Dr. R. J. Lee, which are recorded in a paper "On the Organs of Vision in the Common Mole," published in the last number of the Proceedings of the Royal Society.

Zinn was the first to describe the optic nerve as a branch of that division of the fifth pair which passes to the snout of the animal; but Tiedemann, asserted the existence of a special optic nerve, which, however, had some communication with the fifth pair; and was followed by Treviranus, who concluded, in consequence, that one nerve of special sense is able to assume the function of another nerve of special sense. A rudimentary optic commissure has been described by Solly; and, according to Leydig, the lens of the eye remains in an embryonic condition. Lastly, the third, fourth, and sixth pairs of nerves were stated by Tiedemann to be absent.

As attention had been thus already directed to what may be termed the proximal and distal portions of the organs of vision, there remained only the investigation of the intermediate portion—viz., of that part of the optic nerve which lies in the optic foramen; and this it is which has been so ably carried out by Dr. Lee. The results of his observations, to which fœtal as well as adult specimens were subjected, are briefly as follow:—

In the fœtal mole the globe of the eye possesses the structures usually seen in eyes of very young mammals; and there is present an optic nerve, "which appears to form an upright peduncle for the globe," and which passes backwards to the brain through a true optic foramen. A group of muscles, moreover, not easily differentiable, surround the posterior half of the globe. If the head of an adult specimen be skinned, the eye becomes detached, in the shape of a minute shining bead, concealed by the surrounding hairs. This, instead of being imbedded in an orbital chamber, rests upon a fusiform mass of fibrous tissue, which tapers to a filament in the direction of the base of the skull. This thread, which contains no nerve-fibres, is the atrophied optic nerve. In conjunction with this decay, there is further to be found an absence of the optic foramen in the skull, a mere vestige of the chiasma at the base of the brain, and but a chaos of optical apparatus within the globe of the eye.

It will thus be seen that the eye of the mole presents us with an instance of an organ which is rudimentary, not by the retention of fœtal characters—or, to use a better term, "arrest of development,"—but through *disuse*, "aided perhaps by natural selection"; for, as Mr. Darwin has shown to be the case with the "tuco-tuco" (*Ctenomys*), a south American burrowing rodent, subterranean mammals are liable to inflammation of the nictitating membrane, or third eyelid—a condition by no means favorable to the combatant in the "struggle for existence."

PATHOLOGY OF RENAL DISEASE IN SCARLET FEVER.

That a process of desquamation of the skin occurs about the sixth or seventh week after an attack of scarlet fever, especially in severe cases, is a fact that is sufficiently familiar to every practitioner. With its completion, albuminuria and dropsy commonly disappear, and the patient recovers from the attack. The consideration of the frequency of this relation has led Dr. Baginsky to endeavor, experimentally, to demonstrate whether a still more intimate relation does not exist between cutaneous and renal diseases than is at present admitted. With this object in view, he suppressed the cutaneous functions in rabbits by coating them with impervious varnishes of oil, gum, and resins, or by producing violent inflammation in the skin, as by the application of croton oil and turpentine. The actual cautery was not employed, as it had already been found by Wertheim to produce easily inflammation of the kidneys with hæmorrhage. He employed large and strong rabbits; and took the important precaution of only acting on a portion of the skin at one time, since the temperature rapidly falls if the whole skin be acted on. Thirteen rabbits were experimented on; of which four died within twenty-four hours, and two after forty hours. Albuminuria occurred in four of these cases; whilst in one no urine was secreted. They all died with slow respiration, cold extremities, and in convulsions. Four other rabbits died from the sixth to the ninth day, and one on the third. Four of them presented albuminuria. Two lived on: one to the fifteenth, the other to the nineteenth, day; and the urine of both contained albumen during the early period after the operation. On post-mortem examination, the animals that died within the first forty hours presented very vascular kidneys, of a dark-red color; those that died from the third to the ninth day had also very vascular kidneys, and microscopic examination of the tortuous canals showed the epithelium to be cloudy and enlarged. The glomeruli were gorged with blood. On the other hand, the epithelium of the Malpighian corpuscles and of the straight tubes was not materially altered. The kidneys of the animals that died after this period presented similar appearances, except that the glomeruli were anæmic, whilst the cortical capillaries were strongly injected. The cortex was increased in breadth, and of a smutty yellow color, which was apparently due to the tubes being filled with a partly finely and partly coarsely granular mass, in which were contained the nuclei of the distorted epithelial cells. Hence he concludes that "extensive inflammatory affections of the skin lead directly to disease of the kidneys; this disease consisting, in the first instance, of active hyperæmia, but subsequently of parenchymatous and interstitial pathological alterations." The important deduction that may be drawn from this is, that the pathological affections occurring in the kidney after scarlet fever are not to be regarded as produced by the direct action of a scarlatinal poison, but as the secondary results of the scarlatinal dermatitis; and this, again, leads to the important therapeutical rule that the action of the skin in scarlet fever should receive careful attention.

RELATIONS OF THE EPIDERMIS TO THE DERMIS.

A PAPER appears in the *Archiv für Dermatologie und Syphilis* "On the Normal and Pathological Relations of the Epidermis to the Papillary Layer of the Skin," in which Dr. Auspitz endeavors to show, that though the papillary layer of the skin is ordinarily considered to grow into the epidermic layer, which receives the impressions of the papillæ as soft wax takes the impression of the finger, another view may be sustained—namely, that the epidermis plays an active part in relation to the stroma of the corium; both anatomical facts and a consideration of the history of the development of the skin in the embryo speaking in favor of the view that in the development of the papillary layers, as in that of the glands and hair-follicles, the epidermis may, and actually does, play an active and important part; and, in fact, that we may regard the papillary structure as due to the penetration of the corium by columns of cells of the epidermis, the apparent papillæ of the corium being the parts *not* encroached on. And, taking this for granted, he proceeds to discuss the nature of various pathological conditions more or less immediately connected with inflammation, and arrives at the following conclusions:—1. In hyperæmic and inflammatory processes occurring in the skin, the papillæ are found to be only succulent and slightly swollen; but no modifications of form occur, unless consecutively upon secondary changes in the Malpighian stratum. 2. In simple and lymphatic hypertrophy of the connective-tissue matrix, as well as in cell infiltrations of the corium, the same law holds. 3. In the keratoses or horn-producing affections—ichthyosis—there is either no change in the form or size of the papillæ, or it is only due to the pressure of the hypertrophied horny layer. The prismatic and columnar forms of the latter are by no means dependent on the papillæ of the cutis. 4. The papillomata (warts, condylomata, epithelioma) originate essentially in an active neoplastic process taking place in the rete, which penetrates to a greater or less extent into the likewise hypertrophied connective-tissue matrix of the corium. The papillæ of the cutis here, too, perform only a passive rôle, their elongation and dendritic form being occasioned by the hypertrophy of the epidermis; whilst the elevation of the surface of the skin is due to the hypertrophy of both. 5. An outgrowth of the connective tissue of the skin sometimes occurs, but is never dependent on the pre-existent papillæ. 6. There is no essential anatomical difference between the several forms of papillomata, warts, pointed condylomata, and cauliflower excrescences. The syphilitic condyloma differs from these only through the specific cell infiltration of the corium. 7. Epithelioma represents exquisitely the type of the hypertrophic growing inwards of the epidermis into the connective-tissue matrix.

RAPIDITY OF THE PROPAGATION OF NERVOUS EXCITATION IN MAN.

FRESH investigations upon this point, by MM. Place and Helmholtz, are recorded in a recent number of the *Centralblatt*. M. Place adopted the same method as that formerly suggested by Helmholtz. The cylinder employed for registration was that constructed by Heynsius for the Leyden physiological laboratory, and was carefully planted in such a manner as to avoid accidental vibration. The measurement of the time was estimated by a coincident tracing from a vibrating tuning-fork. The median nerve was irritated first where it runs in the bicipital groove, and afterwards at the wrist, where it runs on the ulnar side of the musculus flexor carpi radialis, the distance of the electrodes being about 300 millimetres, or above one foot. The muscular contractions produced were strong, a more powerful current being required for the excitation of the nerve above where it lies deepest. In order to obtain trustworthy results, one or two minutes were allowed to pass between each experiment. The best observations gave a result of from 50—60 metres per second as the rapidity of propagation of motor impulses, with a mean of 53 metres per second. This differs considerably from the estimate of Helmholtz, who estimates it at only 33 metres per second. The point of excitation in Helmholtz's experiments were somewhat higher than in those of M. Place; and when Helmholtz's point was taken, a number (35·25 metres per second) not very different from his was obtained. Further investigations showed the general truth of Munk's observation, that the rapidity of propagation of impulses was much greater in the peripheral than in the central portions of a nerve. Helmholtz's observations were carried on with a new instrument, of which the idea was suggested by Fick. He found that variations in temperature exert an important influence on the rapidity of propagation of motor impulses, the rapidity being much greater in warm than in cold temperatures. He found also that when two induction currents are passed through, an interval of at least 1-500th of a second must elapse between them in order that the second stroke should produce an augmentation of the muscular contraction. If the period be less than this, the two act as a single shock; with an interval of 1-300th of a second the augmentation is very perceptible. Constant currents readily produce tetanus, especially when passed in a downward direction. Oscillations are felt in the muscle, the duration of which amounts to 0·09 of a second.

TERMINATION OF NERVES IN THE CONJUNCTIVA AND SCLEROTIC.

Notwithstanding that the mode in which the nerves terminate in the conjunctiva and sclerotic has been the subject of frequent inquiry, considerable differences of opinion may still be said to exist with regard to it, and we have received a pamphlet from Dr. Friedrich Helfreich in which he gives the results of his prolonged observations on the eyes of the mouse, rat, rabbit, pigeon, fowl, and frog. For the demonstration of the mode of distribution of the larger trunks of the nerves, he found immersion for twenty-four hours in solutions of perosmic acid, containing from one-half to one per cent. of the acid, followed by maceration for the same space of time in water, and subsequent mounting in glycerine, to be best adapted; whilst for the exhibition of the ultimate ramifications of the nerves, nothing answered so well both for the sclera and cornea as staining with a half per cent. solution of chloride of gold. The chief results he has obtained are, that the principal points of entry of the nerves into the cornea are at the outer and especially at the inner canthus, the former being chiefly derived from the lachrymal and the latter from the infra-trochlear nerves. The larger branches break up into smaller and still smaller fasciculi to form a close delicate plexus, from which fine fasciculi of doubly contoured fibres are given off, that run uniformly below the plane of the capillaries in the frog, though the arrangement is less regular in some other animals. In the latter, after undergoing frequent division at various heights, individual fibres are given off, that suddenly lose their medulla, and enter a subepithelial plexus, composed of similar pale, non-medullated fibres. From the subepithelial plexus almost immeasurably fine fibrils pass to the lowest cell layer, and with a power of 450 diameters may be seen to terminate at this point in *free* extremities. Dr. Helfreich only once observed the fibres to run for any distance outwards between the epithelial cells, and never actually to the surface. He also rarely or never found terminal end bulbs.

The differences that exist between the nervous distribution of the scleral conjunctiva and that of the cornea consist in the greater richness of the subepithelial plexus in the latter, and its more regular form and arrangement; but in both free terminations of nerves are met with, and in both the terminal web of fibres pursues an essentially horizontal direction beneath the epithelium.

THE LYMPHATIC SPACES OF THE EYE.

The last number of the *Quarterly Journal of Microscopical Science* contains a good *résumé* of Schwalbe's paper on the lymphatic spaces of the eye, contributed to the first part of Schultze's *Archives of Microscopical Anatomy* for the present year. In this paper are described the lymphatic spaces of the posterior division of the eyeball, which include the perivascular spaces of the retina, the perichoroid space with its efferent channels, and, finally, a lymphatic space between the outer and inner sheaths of the optic nerve, which, without communicating with the other two, opens directly into the arachnoid sac of the brain. Between the inner surface of the sclerotica and the outer layer of the choroid is a space which was recognised by Arnold as a serous cavity, and to which the name "arachnoidea oculi" might be given. It is distinct from the lamina fusca, though in part occupied by connective tissue, elastic fibres, and stellate pigment cells. The opposed surfaces are smooth and shining, and, after treatment with nitrate of silver, exhibit epithelial markings with oval nuclei. It is most distinct in white rabbits, but cannot be demonstrated in the eye of man, on account of the difficulty of obtaining fresh human eyes. When filled with a colored fluid by injection, the space was found to reach backward to the neighborhood of the entrance of the optic nerve, and forward as far as just under the ciliary processes. The injection left the ball at four points corresponding to the entrance of the venæ vorticosæ, and cross sections showed that the veins were encircled by the injection. On escaping from the globe, the injection filled the capsule of Tenon, which again was found to communicate backwards, by a cylindrical channel surrounding the outer fascia of the optic nerve, with the arachnoid space of the skull. Besides the canal just spoken of as surrounding the whole optic nerve, to which the author gives the name of "supravaginal" space, there is another included between the two fasciæ of this nerve, which he calls the "subvaginal." This is continuous with the arachnoid, but does not communicate with the proper lymphatic spaces of the eye.

PARASITES OF THE FEMALE GENERATIVE ORGANS.

An essay on this subject has recently been published by Dr. D. Haussmann, of Berlin, the prominent points of which we here append. The animals examined were—mare, rabbit, guinea-pig, rat, bitch, and cat, and great care was taken to procure the vaginal mucus from as great a depth as possible, and free from contamination. He divides them into (*a*) vagrant, (*b*) animal, (*c*) vegetable parasites; subdividing the first again into—1, those proceeding from without, either from germs carried by the air, or from local contact, or from the dens or lairs of the animals; 2, those proceeding from the urinary organs; and, 3, those proceeding from the intestinal canal, either by migration, uncleanliness, or through fistulæ between the rectum and vagina. Amongst the first group he has found the thecæ of a fungus, probably identical with the Sporidesmium fuscum and the spores of two other kinds of fungus, itch insects, and smut and rust spores derived from the hay or straw upon which the animals have rested. Amongst the second group he has discovered or met with records of the echinococcus, the eggs of the Distomum and Oxyuris, Strongylus gigas, and Pentastomum denticulatum, and of the Sarcina. Lastly, amongst the third group he has found the ova of Tænia solium, Ascaris lumbricoides, the Leptothrix buccalis, and in rabbits, Cryptococcus guttulatus. The only animal parasite included under the second of the above heads to which he alludes is the Trichomonas vaginalis, an infusorial animalcule of round or oval form, with a bluish-grey contractile integument, and provided with a whip-like cilium in front, and a stiff process behind. These appear to be very resistent of external influences, continuing their movements in the mucus of the vagina even when very acid. The organisms included under the third head of vegetable parasites are vibrios and bacteria, the Leptothrix vaginalis, and Oidium albicans. He made numerous experiments with the object of propagating various fungi, as the Penicillium glaucum, Aspergillus glaucus, Microsporon furfur, Botrytis cinerea, Mucor mucedo, and Mucor stolonifer, in the vagina or vaginal mucus, but with uniformly negative results.

TEMPERATURE OF THE CRANIAL CAVITY.

The temperature of the cranial cavity has lately been made the subject of investigation by M. Mendel, of Pankow, near Berlin. Fick had already found the normal temperature of the cranial cavity to be lower than that of the body generally. Jacobson and Bernhardt had likewise noticed the inferior temperature of the blood arriving at the heart by the superior vena cava, as well as the depression it produces in the right cavities. M. Mendel corroborates these results, and finds constantly that in health there is a difference amounting to seven-tenths, or even to one degree centigrade, between the temperature of the cranial cavity and the rectum in the rabbit; and that in the dog the difference is almost as well marked. Duméril and Demarquay have shown that the temperature of the body is lowered by the action of chloroform. Bouisson arrived at the same results, as have also Sulzynski and Scheinnesson, the experiments of the latter having been performed upon man. The differences observed by Mendel between the temperatures of the cranium and the rectum are much more clearly marked when the animal is under the influence of chloroform than when in a normal state. Chloroform lowers the temperature generally, but especially that of the cranial cavity. The effects produced by chloral on the temperature of the body generally have been already studied by Demarquay. This author has found that the temperature of the body falls several tenths of a degree. M. Mendel arrives at the same results in regard to the temperature of the cranial cavity, except that he has observed it to fall to a still greater degree than the general temperature. Deguix, Dupuy, Leuret, and Gscheidlen have found that, after a moderate or therapeutical dose of morphia, the temperature of the body rises; though when administered in a poisonous dose it falls. Mendel again arrives at the same law —viz., that the depression of temperature is more marked, and occurs more rapidly, in the cranial cavity than in the rest of the body. In poisoning by alcohol, the temperature of the cranial cavity rises to such a point that it exceeds the temperature of the rectum.

PARALYSIS OF THE INSANE.

In the recently published Naval Medical Blue-Book, Deputy-Inspector Dr. Macleod, R.N., the officer in charge of the Royal Naval Lunatic Asylum at Great Yarmouth, makes the following important observations on this disease, from which one-sixth of the patients suffer, the average life of such patients being two years from the date of entry.

"The prevailing impression is, that paralysis of the insane is a disease brought on by hard living and general debauchery. The previous history of the different patients under treatment will not support this belief; as a rule, the very best men, whose certificates for years have on them 'very good' are those who are struck down by it, and if any of them become slaves to different vices, and give evidence of insubordination, it is the *result* and not the *cause* of the disease.

"One occasionally meets with individual cases who while they labor under the incipient symptoms of the disease, and before they manifest decided symptoms of insanity, have failed in conforming to the discipline of the Ship or Marine Corps; and as, unfortunately, the true cause of such change was not suspected, not only did the character of the individual suffer, but in some cases his pecuniary interests were sacrificed. Acts committed under diseased action of the brain lost to him years of good conduct, and it may be his half-pay. When, therefore, an officer, seaman, marine, or boy, is found suddenly to give way to habits of intemperance, or breach of discipline, punishment should never be inflicted until the medical authority in the ship is fully satisfied that there is no progressive brain or spinal disease going on. From the first inroad of the disease, I have every reason to believe that there is a difference of 1° between the morning and evening temperature in all individuals afflicted with paralysis of the insane. I would strongly recommend to my brother officers the frequent application of the thermometer in this form of disease to assist in the diagnosis."

Dr. Macleod's conclusions are as follows:—

"1st. In all cases of paralysis of the insane, there is a higher temperature in the evening over the morning, seldom less than 1°, except in those cases where the disease is arrested, which occasionally happens; then it may be as low as ·10°.

"2nd. That the thermometer shows the progress of the disease when it cannot be satisfactorily discovered by any other means.

"3rd. That in noisy, sleepless, and destructive patients, the temperature is higher than it is in those who are quiet and easily managed."

Correspondence.

"Audi alteram partem."

TREATMENT OF DYSENTERY AT THE SEAT OF WAR.

To the Editor of THE LANCET.

SIR,—In your issue of June, there is a very interesting communication from Dr. Hermann Weber, on the treatment of typhoid fever and dysentery by German physicians at the seat of war. Dr. Weber quotes from a letter written from one of the Bavarian field hospitals near Nancy, by Dr. Wibel, "battalion sergeant" attached to one of the hospitals at that place, apparently set apart for the reception of medical cases.

After describing the arrangements of the field hospitals at Nancy, which, all things considered, appear to have been very good, and mentioning a fact highly creditable to the zeal and earnestness of German physicians—namely, the establishment of a German Medical Society at Nancy, under Niemeyer as first, and Dr. Krulle as second president, which meets once a week for discussion and mutual improvement, Dr. Wibel proceeds to say: "I wish you could see the specimens of complications of dysentery and typhoid fever; they are, indeed, very interesting. As to the treatment of disease in our barracks, it is, in general, symptomatic; in typhoid fever, cold baths, quinine, and roborantia of all kinds; in dysentery, opium, tannic acid, morphia, calomel, and various methods for allaying pain."

From other sources we have learned how successful German army surgeons have been in treating typhoid fever by cold baths. This additional testimony to the supreme importance of reducing high temperature in disease, added to what we know of the value of such a measure in ardent remittents, yellow fever, and insolation, cannot be overestimated. How far German physicians may be acquainted with the doctrine and practice of the late Dr. Currie, of Liverpool, I am not in a position to say, but this return to his too much neglected method of dealing with continued high temperature in disease cannot fail to be attended with good results in the formidable class of diseases mentioned above.

My object, however, in this communication is to ask, through Dr. Hermann Weber, the attention of his able medical friends and countrymen in Germany to a better method of dealing with dysentery than that described in the extract taken from his correspondent's letter.

The Germans have no possessions in tropical regions, and, as might from this circumstance be expected, there is in German medical literature little to be found of much value on tropical diseases. Judging from what Dr. Wibel has written, and from what I have heard from other sources, German physicians do not seem aware of the signal value of ipecacuanha in the treatment of dysentery. Yet this remedy, the radix anti-dysenterica, as it was called of old, has entirely superseded every other remedy in the treatment of this disease in all our tropical possessions. The statistics of the British Army in India prove in the most unequivocal manner that since army medical officers returned to this old method of cure, giving this remedy in scruple or half-drachm doses, the mortality from this scourge of armies in every age and clime has diminished more than one-half.

British medical officers who have to do battle with this enemy all over the world know the futility of astringents in the "bloody flux of camps." Sir John Pringle instructed them on this point long ago. The preparations of opium may indeed sometimes "allay pain," but they do not cure the disease; and as for calomel, nearly half a century of terrible experience in India has served to convince even the most ardent mercurialists that of all the remedies ever tried in this disease, it is not only the most useless, but the most destructive. Even that eminent physician, Niemeyer, in his great work, recommends it; but, for the reason already given, I presume that this distinguished man does not concern himself much with tropical diseases, lying, as they do, outside the range of even his vast experience.

I hope Dr. Hermann Weber will forgive my presuming to ask through him that a trial may be given to ipecacuanha in the hospitals of the German armies. I am sure it will not disappoint those who use it.

I think it well to add, for the encouragement of those who have no experience in its use, that this remedy may be used with perfect safety in the treatment of dysentery, even where the patient is reduced to a condition of great debility, and that, too, in the full doses above described. A young officer was landed at Netley, from India, in such a state of extreme exhaustion from this disease that the men of the Army Hospital Corps who carried him on a stretcher into the hospital were apprehensive that he would die before they could accomplish their object, and were obliged to put down the stretcher several times. This young man was passing upwards of twenty bloody stools in twelve hours, and a medical officer remained with him all night, giving him support and stimulants at short intervals. But even in these apparently desperate circumstances the remedy was given. After one dose the stools were reduced to six in twenty-four hours; on the second day blood disappeared from them altogether, and he made a perfect recovery, and is now an efficient officer. Gentlemen who have served in our clinical wards at Netley will remember many such cases. Of the diet given in the German hospitals in the dysenteric cases I have only to speak in terms of commendation. In all forms of dysentery milk is indisputably the most suitable article of diet. At Netley, when the faintest suspicion of scorbutic taint is present, we allow our patients the regulated use of fresh fruit; and I can say, from a very extended experience, that, in such cases, without attention to this cardinal point of treatment no remedy will have any effect in arresting the disease.

The hygienic points in the treatment, such as the disinfection of the stools, so much insisted on by Dr. Wibel, are also of great importance, and seem to have been well carried out at Nancy. Sir John Pringle insists strongly on the destruction by fire of straw that has been used in camps where this disease prevails.

One word more. I sometimes see cases in this country of bloody flux in men who have been in hot or malarions climates; such cases often go by the name of dysentery. On a superficial examination, the stools have much the appearance observed in true malarial dysentery, until after washing, and examination under the microscope after the manner so well described by my friend Dr. Goodeve, they are found to be quite different, and, what is very notable, quite devoid of the peculiar and highly offensive odor of true dysentery. My belief is, that such cases are in fact cases of catarrh of the mucous membrane of the bowel, the result of exposure to wet and cold such as is common in winter campaigns. I strongly suspect that in such cases the solitary glands of the great intestine are not affected, and that to this, in all probability, the absence of the characteristic odor of true dysenteric stools is due. Some of the German pathologists now in the field might set this point at rest.

I remain, Sir, yours obediently,
W. C. Maclean, M.D.

Royal Victoria Hospital, Netley, June, 12th, 1871.

DEATH FROM TIGHT-LACING, WITH POST-MORTEM RESULTS, ETC.

To the Editor of The Lancet.

Sir,—Jemima H——, aged twenty (appeared to me to be twenty-four), servant, complained, on returning from an errand, of severe headache and intense feeling of cold about 2 p.m. on Dec. 21st last. Her mistress desired her to lie down for the remaining part of the afternoon; but the headache still persisting, she was permitted to retire to bed for the night. As she did not "put in an appearance" at her usual hour the following morning, the mistress went to her room for the purpose of inquiring the cause, when she found the patient, still dressed as on the previous evening, lying on the bed, and quite incapable of being aroused. I was sent for at 7.30 a.m., and found her insensible on the bed, with all her clothes on, dressed, her face pale, pupils widely dilated, breathing stertorous, and on trying to remove her clothing, the task proved so difficult a one that I was obliged to cut them off. I then considered the symptoms due (from the meagre and faulty history) to congestion of the brain membranes, arising probably from the intense cold of the night acting on a weak heart. Some diffusible stimulant was ordered if it could be taken, and flying blisters to nape of neck and extremities. I then left. At 10 a.m., the hour of my second visit, the patient was wildly delirous, unrestrainable, and powerfully convulsed (clonic). At 2 p.m. I was informed, on again visiting her, she had died a short time previous, after a violent convulsive seizure, apparently exhausted. She was removed that night to the public mortuary to await a coroner's order for post-mortem examination. There was no history to the case, save the evidence of the mistress, given at the inquest, which went to prove that she had frequently, but unavailingly, remonstrated with the girl for her persistent folly in lacing so tightly.

Autopsy, forty-two hours after death.—Weather intensely cold; air crisp, dry; sky clear; recent snow-fall lay. Rigor mortis complete; no marks of violence; body indifferently nourished. I was at once struck with the nude configuration of the body, which was peculiar from the extraordinary amount of constriction at the loins and the "squareness" of the shoulders, which were remarkably high for a delicately formed female; the clavicles being horizontal, straight transversely; the form of upper part of body being flat and triangular, the base being formed by the "square" shoulders, the apex resting on the pelvis, which projected considerably, and the sides being perfectly free from contour, and sharply defined. There was little pectoral or mammal development; the lower extremities were œdematous, and the whole appearance gave me the unpleasant impression of being "pinched." On opening the chest, the lungs were found to fill the cavity completely; the right was adherent throughout to the chest-walls, and congested; the left congested. Pleural cavity contained some fluid, but there were no adhesions. The position of the diaphragm corresponded to that of extreme expiration. Heart very small, did not weigh four ounces, flabby, structure pale and weak; right ventricle distended with black fluid blood; left empty; valves healthy; pericardium contained about three-quarters of an ounce of fluid. Abdomen contained over a pint of serum in peritoneal cavity. Liver enormously enlarged, congested, and friable, the capsule readily tearing off; it extended completely across the abdomen, overlapping the left margin of spleen, to which it was firmly adherent, compressing the stomach, duodenum, transverse colon, and small intestines. I should think it did not weigh less than between sixty and sixty-five ounces. Gall-bladder, distended with bile, descended an inch below superior margin of liver. Stomach very small, not larger than an infant's; walls hypertrophied; rugæ considerably enlarged; it contained some dark-colored fluid, apparently coffee. Duodenum much thickened; contained some bile and semi-digested food, as did small intestines. Spleen and kidneys intensely congested and enlarged. Brain membranes intensely congested; I do not think I have ever seen them more so, the whole surface presenting the appearance of a blackened mass, almost unrecognisable. There was an apoplectic spot on the surface of the right hemisphere posteriorly, with some effusion of lymph. The brain-substance was considerably softer than in health, and presented a "mottled" appearance on being cut into. No fluid in ventricles. Dark-colored fluid at base of brain. Sinuses engorged, as also vena Galeni.

I do not think the foregoing facts need any comment further than that I have never seen a case in which the viscera were so generally and to as great an extent congested, especially the brain and its membranes, and clearly points to the severe nature of the systematic torture the victim of this unnatural propensity must have submitted herself to, and for a considerable period of time evidently, to gratify a silly and wicked vanity by tight-lacing.

Yours truly,
W. H. Sheehy, L.R.C.P. Ed., &c.

Claremont-square, Feb. 1st, 1871.

TREATMENT OF GONORRHŒA AND GLEET.

To the Editor of THE LANCET.

SIR,—In your issue for March, I find a brief notice of the use of permanganate of potash as an injection in the treatment of gonorrhœa and gleet. Having been in the habit of using this remedy for the cure of the above-named diseases for several years in the U. S. army, I hope that my observations on its usefulness will not be altogether without interest for you and the profession in general. In the U. S. army, where we cannot complain of want of cases, as Dr. T. Warden, R.N., does, to the honor of the British service, I commonly employed a solution of the salt not exceeding two grains of the permanganate to the fluid ounce of distilled water, to be injected three times daily. Internally I was in the habit of giving an emulsion of copaiba, half a fluid drachm of the balsam thrice daily. Generally speaking, I found that the disease was much quicker subdued by this than by any other treatment, although I had no case on my record of so short duration as Dr. Warden reports, which probably was owing to the weakness of the solution employed by me. After reading Dr. Warden's statement in your journal, I had occasion in two cases to try a stronger injection, and I must confess that I was surprised by the extraordinary success of this remedy.

The first case, a negro, had been suffering from gonorrhœa for upwards of fourteen days. He had been taking capsules of copaiba and other popular remedies without success. I gave him a solution of permanganate of the strength of four grains to the fluid ounce, accompanied by an emulsion of copaiba. He remained under this treatment for three days. I dismissed him perfectly cured on the morning of the fourth day. Had no relapse since (one month and a half after cure).

The second case, one of chronic gleet, occurred in a white man, a laborer in a malt-house. Had been under the treatment of several physicians, the disease being seemingly subdued, but returning whenever he exposed himself to cold. I gave the following remedies:—As an injection four times a day: ten grains of permanganate of potash to two fluid ounces of distilled water. And a teaspoonful of the subjoined mixture thrice a day: copaiba, one fluid ounce; spirit of nitric ether and compound spirit of lavender, of each half a fluid ounce. After using these remedies for five days I discovered not the slightest sign of the disease remaining, and discharged him from treatment. Has had no relapse yet, fifteen days after cure.

In the latter case the injection first caused a slight irritation, which, however, did not last long, and was well borne after the second day.

Hoping that you will kindly excuse my liberty in occupying so much of your precious space,

I am, Sir, your obedient servant,
H. VON VERSEN.

Baltimore, Maryland, April 20th, 1871.

◆

TREATMENT OF HYDATID CYSTS BY SIMPLE TAPPING.

To the Editor of THE LANCET.

SIR,—As there have been several articles in your columns, advocating the treatment of hydatid cysts by electrolysis, I thought that you might deem the following case worthy of insertion, as illustrative of the value of simple tapping with a fine instrument as a means of cure in these cases.

S. T——, aged seven, was admitted into this hospital on Oct. 24th, 1870, under the care of Mr. Sympson. I obtained the following history from her mother:—Two years ago she began to suffer from retention of urine, and it was then discovered that she had a small tumour in her abdomen. Since that time the tumour has gradually increased in size, and the retention of urine has been almost daily relieved by the use of a catheter. The first time that I drew her urine off I found that, after emptying the bladder, there was still a large tumour in the abdomen. On examination, this tumour was found to be movable, but generally lying with its upper extremity to the left of and about two inches higher than the umbilicus, and the lower extremity in the right inguinal region. It was clearly defined, dull on percussion, and was about the shape of the uterus at the seventh month of pregnancy. The child's appearance was healthy, except that she was very thin; but this was easily accounted by the pain which she had suffered from the retention of urine. The bowels were regular, appetite good, urine normal. The day after her admission she was put under chloroform, and examined by the rectum, when distinct fluctuation could be detected in the tumour. The case now presented very much the characters of an ordinary ovarian cyst; but, as she had not arrived at the age of puberty, it was thought very improbable that such could be the real nature of the case.

On Nov. 3rd the patient was put under chloroform, and a perforated needle, about half the diameter of a No. 1 catheter, was passed into the tumour a little below the umbilicus, and fourteen ounces of clear, colorless fluid drawn off. This fluid possessed all the characters of that usually found in hydatid cysts—viz., neutral reaction, low specific gravity, large quantity of chlorides, and, finally, echinococci were detected in it by the aid of the microscope. A graduated pad was applied firmly over the puncture, and secured by strapping and a bandage. The tumour partially filled again; but the fluid was quickly reabsorbed, and up to the time of my writing she has had no recurrence of retention of urine, nor can any tumour be detected through the abdominal walls, though one can still be felt per rectum.

There is one point in the treatment to which I wish to call attention—viz., the use of a very fine instrument in tapping the tumour. In cases in which the fluid is sufficiently thin to allow the use of such an instrument, it seems to me that the operation is almost without danger, as the fear of effusion of the fluid into the peritoneum (in abdominal tumours) and of suppuration of the wound or cyst is reduced to a minimum.

I remain, Sir, yours, &c.,
GEOFFREY HEFT.
House-Surgeon.

Lincoln County Hospital, Jan. 18th, 1871.

◆

CHLORAL HYDRATE.

To the Editor of THE LANCET.

SIR,—I think the following case is worthy of notice, as it seems to show how greatly the effect of a drug may be modified by the vehicle in which it is administered.

My patient, a lady, has been taking thirty grains of chloral hydrate in flavored syrup as a night draught for the past three months, with the effect of lulling neuralgic pain, so as to allow of pretty continued sleep. The influence of the drug has usually commenced about two hours after administration, and continued during the night without marked symptoms. Two nights ago I changed the vehicle (a strong syrup containing ten grains of chloral hydrate to one fluid drachm) for camphor water in the same proportion. The customary dose was taken, three fluid drachms by measure, in a wineglass of water. I happened to be in the room at the time, and was surprised by seeing the patient about fifteen minutes after taking the dose sink down on the floor (she was standing by the bedside at the time) in deep unconscious sleep, as though thoroughly under the influence of chloroform. I placed her on the bed. In about five minutes the respiration became a little troubled, and the teeth clenched, perhaps due to the smelling-salts and eau de cologne which I held to the nose. Gradually semi-consciousness returned, and after fifteen minutes the patient was sufficiently restored to sit up and to assist in finishing undressing herself for bed; but she was wholly unaware of what had occurred, and when in bed soon dozed off, but the sleep was much more ungenial than ordinarily. In the morning she complained that the chloral had not lulled the pain so effectually as usual, and that she felt more wearied. There was no nausea.

The chief points I wish to call attention to are, the sudden invasion of anæsthesia, and the danger of injury or of suffocation to the patient had she been alone; the fact that the dose was the same that had been taken for a long period, and therefore a dangerous result was the less to be apprehended. The cause of the unlooked-for occurrence was due to the vehicle, which favored more speedy absorption than the syrup. The whole effect of the drug seemed to be expended in a single explosion, instead of, as formerly, being spread over a considerable period of time. The more tardy action of opium and other poisons when the stomach is full is well known. It would seem that in like manner the action of the chloral may be greatly modified if the conditions under which it is used are but slightly modified.

Yours obediently,
H. Fly Smith.

Chepstow-villas, W., Feb. 5th, 1871.

P.S.—I gave again last night twenty grains of the chloral in camphor water. Sleep came on, was deeper, and of shorter duration than with the syrup. The patient woke about 3 A.M., when the dose was repeated, the effect of the first dose having quite subsided, and the neuralgic pains being very severe.

◆

ON THE TEMPERATURE OF THE BODY IN TETANUS.

To the Editor of The Lancet.

Sir,—When bringing before the Clinical Society, a case of recovery from tetanus (see The Lancet, January number), I drew attention to the fact that during a considerable period, and at a certain stage of the attack, the temperature of the patient, in addition to its being unusually high, was found to be augmented in the evening. I was thus led to offer the suggestion that possibly this thermal variation of temperature might be found to obtain generally or even universally in true tetanus. Since then I have had no opportunity of making further research as to temperature in this disease, but Dr. W. W. Keen, of Philadelphia, has sent me an account of a case of tetanus which was under his care* in St. Mary's Hospital in that city, in which, for several days during a portion of the illness, the evening temperature was markedly higher than in the morning. Dr. Keen gives a table showing the diurnal state of the pulse, respiration, and temperature, and observes that he does so in response to my suggestion above alluded to, and for comparison with other cases.

Encouraged by this timely contribution on the part of Dr. Keen, I am induced to ask such of the readers of your columns as may have to treat cases of tetanus, if they will have the goodness to note and record in your journal (or forward to me) the morning and evening temperature of such patients, with a view of testing the value of the suggestion.

Especially, I suppose, might regularity of variation as to temperature be anticipated in those cases which, according to some observers, have more or less of an intermittent or periodical character. If variations are observed, it may be that fluctuations may exist which are peculiar to one or other form of tetanus. It would be a point of interest to inquire further upon what such variations depend; and a question to be asked whether they have any relation to such changes in the texture of the spinal cord as are found to have supervened during some attacks of fatal tetanus, by reason of the intimate connexion 'twixt the so-called sympathetic system and the spinal cord.

I am, Sir, your obedient servant,
John W. Ogle, M.D.

Cavendish-square, April 19th, 1871.

◆

FATAL STRANGULATION BY THE FUNIS.

To the Editor of The Lancet.

Sir,—The following case is worthy of record:—I was called at 3 A.M. on November 23rd to a midwifery patient. On my arrival it was stated that the child had been born for a quarter of an hour, and had given at first but feeble signs of life. Unfortunately the nurse had not arrived, and the infant was left as born, a young woman who was present at the time being afraid to interfere. I found the child lying on its back, with a double coil of funis round the neck, no pulsation in the cord, and no sign of life. The uterus was contracted, and the placenta in the vagina. The cord was flaccid, and the finger could be passed easily between it and the neck. Artificial respiration was kept up for half an hour, but produced no effect, except a slight discharge of frothy, blood-stained mucus from the nose at the commencement.

On post-mortem examination ten hours after birth, the body presented the appearance of a fully-developed female infant, weighing 7 lb. 6 oz. There was no bruise or indentation round the neck; absence of lividity of face; no foreign body in the air-passages. The lungs were found fully inflated, and floated in water both when entire and when minutely subdivided. The weight of the lungs, heart, and thymus was 1750 grs.; of the lungs alone, 1093¼ grs. The heart cavities were filled with dark fluid blood. The kidneys presented no trace of uric acid infarction. No sign of diseased organ discovered.

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* The *Medical Times* (Philadelphia), March 1st.

In this case strangulation by the funis was probably the cause of death. I attribute the absence of constriction, when I saw the case, to the shortening of the distance between the placental and the fœtal end of the funis on the separation of the placenta, and of the diminution of funis volume on the subsequent cessation of circulation. The case is important from a medico-legal point of view, and bears out two conclusions which are laid down by Dr. Taylor (Medical Jurisprudence, 1865)—first, the occurrence of death from strangulation after birth, with thoroughly established respiration, from natural causes; second, the absence of any local post-mortem evidence of such strangulation.

I am, Sir, your obedient servant,
JOHN H. GALTON, M. D. Lond.

Thicket-road, Upper Norwood, Dec. 14th, 1870.

◆

THE TREATMENT OF THE VARIOLOUS PUSTULE.

To the Editor of THE LANCET.

SIR,—In the *practitioner* there is an account of the various methods adopted in the treatment of the variolous pustule. Dr. Maraghano recommends the use of glycerine, and, from his experience of it in 800 cases, he finds that it "relieves tension, aids the crusts in separating, and hence leads to less pitting."

The good effects that I have seen produced in various cases of cutaneous irritation by a mixture of equal parts of glycerine and sulphurous acid would lead me to suggest a trial of this mixture in the treatment of the variolous pustule. In addition to the soothing relief that might be expected from its application, there might be something to hope for in the way of diminution of the contagiousness of this disease in the use of so powerful a disinfectant as sulphurous acid has proved itself to be. Applied to the whole surface, it would destroy to a great extent the loathsome smell of small-pox. Its sedative power upon an irritant skin is very great; no smarting follows its use, but a sense of cooling is imparted, such as few other agents are capable of producing.

Dr. M. adds a few drops of laudanum to the glycerine when there is much irritation. There would be no harm in adding it to the mixture I propose; but I imagine that without the opium it would be sufficiently sedative in its nature. The solution of sulphurous acid in methylated spirits is the very best remedy to apply to bruises and sprains. I have used it for these as well as for chilblains for more than a year, and have had ample experience of its usefulness.

Yours faithfully,
WALTER FERGUS, M.D.

Marlborough, April 6th, 1871.

BRAN BREAD.

To the Editor of THE LANCET.

SIR,—I beg to furnish you with the enclosed formula for publication, and trust that your readers will find it to be a useful and an efficient one. During the last three or four years I have frequently prescribed it for my patients suffering from dyspepsia, and have always found favorable results after its administration.

The formula used by me is as follows:—Take a sufficient quantity (say two or three quarts) of wheat bran, boil it in two successive waters for ten minutes, each time straining it through a sieve; then wash it well with cold water (on the sieve) until the water runs off perfectly clear; squeeze the bran in a cloth as dry as you can; then spread it thinly on a dish, and place it in a slow oven. If it is put in at night, let it remain until the morning, when, if perfectly dry and crisp, it will be fit for grinding. The bran thus prepared must be ground in a fine mill, and sifted through a wire-sieve of sufficient fineness to require the use of a brush to pass it through. That which does not pass through at first must be ground and sifted again until the whole is soft and fine. Take of this bran powder three ounces, three fresh eggs, one ounce and a half of butter, rather less than half a pint of milk; mix the eggs with part of the milk, and warm the butter with the other portion; then stir the whole well together, adding a little nutmeg and ginger, or any other agreeable spice. Immediately before putting into the oven, stir in first thirty-five grains of carbonate of soda, and then three drachms of dilute hydrochloric acid. The loaf thus prepared should be baked in a basin (previously well buttered) for about an hour or rather more. Biscuits may be prepared as above, omitting the soda and hydrochloric acid and part of the milk, and making them of a proper consistence for moulding into shape. If properly baked, the loaves or biscuits will keep several days, but should always be kept in a dry place, and not be prepared in too large quantities at a time.

Yours truly,
ALFRED BROSTER, M.D.

Williton, March 11th, 1871.

◆

NEW MODE OF DELIVERING IN ARM PRESENTATIONS.

To the Editor of THE LANCET.

SIR,—The interesting case by Dr. Tucker, recorded in THE LANCET for May, brings to my recollection a similar case which occurred in my practice many years ago, but which was somewhat differently treated. The following are the particulars.

MRS. R——, about thirty years of age, was in labour with her fourth child. She had a contracted pelvis, and I had on two occasions delivered her by forceps, and on one by embryotomy. On this occasion the arm presented, the water was evacuated, and she had been many hours in labour before I saw her. I made several attempts to turn, but it was quite impossible, the child lying across the uterus rigid and immovable. I could lay hold of the inferior extremities, but no force could move it. Seeing no prospect of delivering by turning, and the patient becoming a little exhausted, I determined to deliver by cutting instruments. I used a pair of strong scissors. I introduced the point of the scissors through one of the intercostal spaces, and clipped along the space to the spine, and with the scissors cut through the spine. I then introduced my hand, seized hold of the feet, turned the child with the greatest ease, and delivered the patient. She had a good recovery.

The plan I adopted is, I think, much superior to the ordinary one of disembowelling the child, and extracting it doubled, or tearing it out piecemeal. When the spine was cut, it seemed to act like a hinge.

I am, Sir, your obedient servant,
J. C. ORCHARD, L.R.C.S. Ed.

Kingussie, Inverness-shire, June, 1871.

◆

HYDROPHOBIA.

To the Editor of THE LANCET.

SIR,—As there have of late been several cases of hydrophobia, and will in all probability be more as the season advances, I feel constrained to make known, through your valuable medium, a course of treatment which my father (the late Dr. Harland, of Scarborough) pursued with great success in sundry cases of tetanus, and which he thought might also prove beneficial in hydrophobia, which he was inclined to regard as a kindred disease of the nervous centres, and principally seated at the base of the brain.

In three cases of tetanus arising from gunshot wounds in the leg below the knee, he avoided amputation, although considerable portions of bone were shot away; in one case, about two inches, with the muscles much lacerated. Lock-jaw set in, however, after the lapse of a few days, which he subdued by the following treatment:—He introduced a seton in the back of the neck (rubbed with cantharides ointment, to hasten its action), and applied a mustard plaster the whole length of the spine, gave the patient sundry doses of cocculus indicus pill, &c., and administered mild but oft-repeated doses of chloroform (on a hankerchief) during the paroxysms, which in one case were very frequent and obstinate. Each patient recovered without recourse to amputation.

Yours truly,
H. S. HARLAND.

Brompton, Yorks, April, 1871.

P.S.—Should any medical man have the chance, and try the above remedies in a case of hydrophobia, I shall feel obliged if he will kindly let me know the result.

◆

ACTION OF CHLORAL ON THE BLOOD.

To the Editor of THE LANCET.

SIR,—About four months since I attended a gentleman, aged forty-nine, suffering from ulceration of the mucous membrane of the bronchial tubes and bladder, and finally of the intestines also. At the request of a brother-surgeon, I consented to the administration of fifteen grains of chloral, followed by opium pills if necessary. The draught was given about 7 P.M. The following morning, at about 8 A.M., I received a message to visit my patient immediately. I found him slipping off his pillows, his eyelids half separated, his face very pallid, and his pulse very feeble. He was drowsy, yet rousable. He muttered, as distinctly as his dry mouth would permit of his so doing, "Pay Mrs.—— (mentioning the name of his landlady), get water-cart, do nothing, give me drink all day." He regained some degree of consciousness after this, but died suddenly whilst on the night-stool about two hours afterwards. I consider that he ought to have lasted about two days. He was excessively intolerant of all narcotics and sedatives; had, in his own opinion, twice narrowly escaped death from the inhalation of chloroform for the relief of odontalgia, and shuddered at the sound of any word beginning with "chlo."

Yours, &c.,
G.

March, 1871.

◆

A SIMPLE AND AGREEABLE MODE OF ADMINISTERING COD-LIVER OIL.

To the Editor of THE LANCET.

SIR,—The modification of the fishy taste of cod-liver oil by a method suggested by Carlo Pavesi, which appears in your last impression, suggested to me the idea of submitting to your perusal that in use by myself.

A variety of methods have from time to time been suggested in order to render the administration of cod-liver oil easy and agreeable; but I have found none so efficient as the following:—Direct the patient to place a few grains of chloride of sodium on the tongue before taking the prescribed dose of oil (a piece of bread may be eaten after if preferred). With this simple adjunct patients who before rejected it will take the oil with apparent relish, describing the taste as that of herring or sardine.

I am, Sir, yours obediently,
AUBREY WICKS, L.R.C.P.S.E.

Bicester, Oxon, April 17th, 1871.

◆

EXPULSION OF THE PLACENTA IN PREMATURE LABOUR.

To the Editor of THE LANCET.

SIR,—In your journal, (February Number,) I notice the report of a case of "Induction of Premature Labour," recorded by Chas. Roberts, M.R.C.S., in which the placenta seems to have given much trouble, being finally extracted after the lapse of ten days. I think if Mr. Roberts had introduced *one finger* into the uterus, carefully and thoroughly detached the placenta with it, and then left the case to nature, he would have had the pleasure of seeing the placenta expelled within twelve hours after. This has been my invariable practice for the last six years, and I have never yet seen it fail. I sometimes give a few doses of ergot after the operation.

I am, Sir, yours truly,
JOHN BAIRD, M.R.C.S.E.

Mount Gambier, South Australia, March, 17th, 1871.

PRURIENS VULVÆ.

To the Editor of THE LANCET.

SIR,—A very troublesome case of pruriens vulvæ induces me to ask if it is always to be intractable to remedies? The case I allude to is that of a lady, aged forty-four, who for years past has daily taken a bath, and at night used a syringe, for the sake of cleanliness. She lives abstemiously, suffering from a fibrous tumour of the uterus. She never walks or undergoes fatigue. Among the remedies she has used are the following:—Bismuth, sulphur, morphia, chloroform, acetic acid, cold cream, nitrate of mercury ointment, linseed-tea with soda, lime-water, with internal administration of alkalies and tonics. I should be glad of a suggestion from some of your correspondents.

Your obedient servant,
CHIRURGICUS.

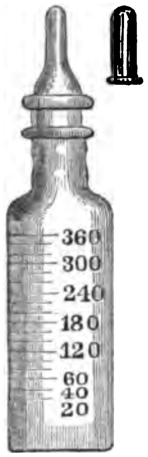
March, 1871.

New Inventions

IN AID OF THE

PRACTICE OF MEDICINE AND SURGERY.

GRADUATED CHLOROFORM BOTTLE.



THE accompanying sketch will afford a better idea than any written description of a little invention of Mr. J. Astley Bloxam, chloroform administrator and surgical registrar of St. Bartholomew's Hospital, late assistant-surgeon, Royal Horse Guards; consisting of a chloroform bottle, provided with a graduated scale, for the administration of that agent. It is very portable and cheap; and, from the fact of the chloroform being spread over a large surface of lint by its use, there is secured a very considerable admixture of atmospheric air with the chloroform vapor. The chief merit of the bottle consists, after all, in its being so simple in itself, allowing of the administration of the chloroform to watch the patient attentively, as well as notice the amount consumed, without any trouble. The bottle is fitted into a neat leather case, the length of which is 4¾ in., by 1¼ in. in diameter. It costs 3*s*. 6*d*. complete, and is manufactured by Arnold and Sons, instrument makers to St. Bartholomew's Hospital, 35 and 36, West Smithfield.

ROYAL COLLEGE OF SURGEONS.

PROFESSOR ERASMUS WILSON'S LECTURES ON DERMATOLOGY.

LECTURE I.

ON Monday afternoon (January 30th) Mr. Erasmus Wilson, F.R.S., gave the first of a course of lectures on Diseases of the Skin. He commenced by observing that last year he had taken a synoptical survey of cutaneous diseases, and he now proceeded to a demonstration of the specimens of skin affections contained in the Museum of the College, to indicate their pathological histories and relations, and the principles of their therapeutical management. There were 513 different objects, and they had been arranged in such an order as best facilitated their study, and conformed them to the ordinary divisions of pathological and physiological phenomena. The natural starting-point was common inflammation, and he proposed to arrange the whole under seven heads as follows:—1. ***Diseases of common inflammation***, including (*a*) eczematous, erythematous, phlyctenous, furunculous, and traumatic affections. 2. ***Diseases due to blood poisons***, including (*a*) exanthematous, (*b*) syphilous, and (*c*) elephantous diseases. 3. ***Diseases of diathesis***—(*a*) leprous (lepra vulgaris), (*b*) strumous, and (*c*) carcinomatous. 4. ***Diseases of function***—(*a*) trophopathic (errors of nutrition), (*b*) neuropathic, and (*c*) chromatopathic. 5. ***Diseases of the epithelium***—(*a*) epidermic and (*b*) onychopathic. 6. ***Diseases of the hair***—trichopathic. 7. ***Diseases of the gland system***—steatopathic and hydrotopathic.

Speaking first of eczema, Mr. Wilson said he would define it shortly as "an inflammation of the skin attended by breach of surface." It presented, as shown by the models, a plurality of signs and lesions, ichoration, squamation, pustulation, &c., which were aptly expressed by terms in current use, and which were justifiable from the fact that no one particular stage or phase was predominant in actual cases of diseases such as the models represented. Mr. Wilson specially called attention to eczema erythematosum orbiculare and eczema erythematosum circinatum, the former made of orbicular patches denuded of epidermis, each patch being bordered by a broken edge of cuticle, like a frill; the other being composed of rings, the centres of which are pale instead of red, the margin above being red and fissured. To account for the difference was difficult.

He then proceeded till the close of the lecture to give the clinical features of eczema exfoliativum, or pityrasis rubra of Devergie, the dermatitis of authors, pointing out the characteristics as intense persistent hyperæmia of the whole body, with the production and frequent throwing off of bran-like scales or flakes. One case was referred to in which about ten pounds weight altogether had been cast off in a month from the subject.

Mr. Wilson had caused enlarged colored drawings of parts of the models to be made, and these, hung behind the lecturer, were very effective, and at once and readily enabled the audience to follow the description of the diseases, and to perceive the characteristic features, as given by the lecturer.

LECTURE II.

Mr. Wilson proceeded in his description of the several varieties of eczema, and directed attention, in the first instance, to a variety which had lately been well exemplified in a case under his care, and which deserved special recognition. It occurred in a man aged thirty-four, and assumed the erythematous form, consisting of puncta and small patches, seated chiefly on the body, but also on the limbs, and a uniform redness of the face, accompanied by itching generally over the body. The man had suffered from bronchitis, and certain liniments of a stimulating kind had been used, when the eruption broke out suddenly all over the body, and the neuralgic pains of which he complained in the chest subsided. The patches were made up of coalesced puncta, and were some one inch in length and two or three lines broad. The patches were abundant on the back, but slightly raised, uniformly red, some vividly so, and without desquamation or exudation; in fact, the case was one of monomorphic eczema. The patches were directed with their long diameters pointed downwards from the spine, then sweeping upwards to the front; indeed, the patches were disposed in lines corresponding to the course of the anterior spinal nerves, like zoster, or the spots of the leopard or tiger. Ten days subsequently the skin desquamated, and the disease left behind small circular patches, having the characters of eczema erythematosum orbiculare and circinatum, referred to in the former lecture.

Mr. Wilson then described eczema papulatum in its several aspects, in the congested, corymbose, and confluent forms; the confluent form being produced by the union, by congestion and infiltration, of the interfollicular portions of the skin. In the papulous eczemas, the presence of papules was the chief mark, but the other characteristic features might be present—e.g., infiltration and crusting, or fissures exuding ichor, when what was called by Willan lichen agrius was present. The polymorphic form and the tendency to exudation marked the latter condition as not different from eczema. Attention was next directed to several models of eczema nummulare, and E. papulosum circumscriptum. The lecturer remarked that the development of the papules in groups was according to law, and took place under the influence of the nerves. He further observed that if it were said that the various terms used to designate the several varieties of eczema were of no practical import, it might be replied that dermatologists are observing nature, and need scientific designations: whilst they reminded us that the same eruption was modified by locality, constitutional condition, and other circumstances, and their employment prevented us from error in diagnosis, enabling us to observe the relations of diseases that might otherwise be regarded as distinct affections, as in the cases of eczema exfoliativum and lichen agrius. The Willanean type of eczema vesiculosum was next described, and the difference between dry and moist eczemas accounted for by the presence or absence of œdema, the latter giving rise to the outpouring of fluid with vesiculation, or free oozing from an abraded surface. In the young, and the lymphatic, fluid exudation was observed; in the old, and subjects deficient in fluids, the eczema was of the dry variety. There is nothing specific in the vesiculation or the discharge of eczema, it was contended. The doctrine Mr. Wilson wished to impress on his hearers was that eczema is a simple inflammation of the skin, with variety in its manifestations, due to peculiarity of structure of the surface, constitution of the patient, and duration of the disease; that it might consist of hyperæmia, and exfoliation or ichoration and incrustation in addition, in consequence of the occurrence of exudation. Hence there were two main forms, moist and dry. The hyperæmia might affect the papillary plexus or the follicular plexus or both; it disturbed the nutrition, hence the exfoliation of the cuticle. If exudation occurred the cuticle was raised into vesiculation, or there might be free oozing or abundant discharge of fluid of different characters, serous or purulent. The word "catarrhal" had been applied to eczema, which had been called catarrh of the skin, and this designation was no doubt correct. Lastly, Mr. Wilson gave a description of eczema squamosum, and pointed out that in chronic eczema of this kind the appearances of eczema erythematosum orbiculare and circinatum could be readily discerned in many cases.

The excellent models of the Dermatological Museum, and colored enlarged drawings used in illustration by the lecturer, were all that could be desired to give due effect to his verbal description.

LECTURE III.

In his third lecture Mr. Wilson proceeded to describe the squamous forms of eczema under two chief varieties—viz., pityriasis and psoriasis, two leading features of eczema, hyperæmia and disordered formation (exfoliation) of the cuticle, being present in each case. Mr. Wilson explained that the term psoriasis had been applied erroneously to the lepra of the Greeks—our lepra vulgaris; but its application ought to be confined to the squamous phase of ordinary chronic eczema. Before proceeding to describe the secondary changes—which occur as the result of the continual hyperæmia in eczema—in the corium, giving rise to induration and hypertrophy of the corium and epidermal textures, Mr. Wilson passed in review the ground which he had already traversed, with the view of showing that the preparations at present in the museum illustrated the fact that there were transitional forms between the several varieties of eczema he had described; and he observed that eczema might be said to be not only erythematous, papulous, ichorous, squamous, pustular, &c., but also divisible into two chief types, the moist and the dry. These points were shown by a reference to the models and drawings. Passing on to note eczematous infiltration, thickening, induration, and fission, a series of preparations were exhibited, with a view of demonstrating—(*a*) the hypertrophy of the epidermis, which is often seen as a consequence of eczema, especially about the palms of the hands and the soles of the feet; (*b*) hypertrophy of the papillæ cutis, described by the French under the most misleading title of lichen hypertrophique, the term lichen, as Mr. Wilson observed, being applicable to papules formed by the erection and inflammation of the follicles of the skin; (*c*) hypertrophy of the fibro-cellular tissues in the condition, termed false elephantiasis, but by Mr. Wilson denominated eczema spargosiforme, a variety of eczema which was termed in America, some years since, erythema papulatum et tuberculatum, to puzzle dermatologists, up to this time, until the present explanation as to its real nature; (*d*) hypertrophy of the nails, the part formed by the matrix being specially affected; and lastly (*e*) mucous eczema, in which a peculiar secretion was poured out upon the skin, forming a crust and covering over a softened and reddened base of integument, presenting much the aspect of mucous membrane. A favorite seat, however, of this disease is the lip, the surface being covered with an irregular light-yellow mask, as it were, of exudative matter, the mucous membrane not being ulcerated.

LECTURE IV.

Mr. Wilson in this lecture proceeded to speak of three other diseases which he includes under eczematous affections—namely, scabies, lichen, and impetigo. He observed that the lesion of eczema and of scabies were the same, the diagnosis of the two being made by the discovery of the acarus in the latter case. Scabies most often assumed the form of eczema papulosum, but not uncommonly of E. vesiculosum or pustulosum. Attention was called to the capabilities of plaster-of-Paris casting for the delineation of eruptions of the skin; as shown by the casts before the lecturer. The papule element of scabies, Mr. Wilson proceeded to point out, had been termed lichen; true lichen, however, was monomorphic. A drawing of the back of a man whose skin, irritated by a stimulant liniment, was covered over with red points produced by follicular inflammation was exhibited as representing so-called lichen, and it was affirmed that had the applied irritant been more potent in operation, exudation would have followed, giving rise to eczema; in fact, the case showed that so-called lichen was a stage of eczema—an eczema papulosum. The diagnosis of true lichen should turn on the question whether it was an idiopathic affection or merely a part of a general disorder. Two instances of true lichen, in which papulæ form the only and permanent lesion—viz., lichen planus and marginatus—were described. Speaking of the forms assumed by varieties of different diseases, Mr. Wilson explained that they were accounted for by the anatomical distribution of lesions—the follicles in one, the papillary layer in another, the inter-follicular parts of the skin in another case being affected, &c.—and to the varying intensity of the case; conferted varieties of disease, resulting from the action of a general cause in great potency, discrete eruptions from the same cause in a weaker degree, localised disease being the result of local causes, patches being also accounted for by the implication of certain areas related to the distribution of particular nerves. The characteristics of lichen planus were said to be the occurrence of dull red papules, seated at the hair follicles, covered by very fine adherent scales, having a shining aspect and a flattened apex, which is depressed in the centre, where it exhibits a hilum plugged by epithelial matter and occasionally plugged by a hair. The disease leaves behind dull red stains, and is accompanied by much irritation. Lichen marginatus was described as a chronic inflammation of the follicles, accompanied by itching, of a chronic course, having a predilection for the perineum and the fork of the thighs; the centres of the patches being dull and scaly, the border bounded by distinct papulation, the tissues being in some cases generally thickened. This affection, called Indian and Burmese ringworm, is the same as the eczema marginatum of authors, and Mr. Wilson did not attribute to it a parasitic origin. The lichen planus was regarded as identical with the lichen ruber of Hebra. The lichen urticatus of children Mr. Wilson regarded as allied to urticaria and as properly falling under the head of the latter. Impetigo was ranked as an eczema pustulosum, and in its sparse form affects the follicles; it might be regarded as a catarrhal folliculitis.

LECTURE V.

The treatment of eczema formed the subject of this lecture. The local treatment was first discussed. Mr. Wilson explained to his hearers that the local symptoms in all the forms of eczema were essentially the same, differing in quantity and degree only. The chief symptoms were those of inflammation, and it is necessary to remember that the skin is in a state of excessive irritation, and the object should be to avoid, especially in the early stages, anything that increased this irritation. The chief remedies calculated to soothe the skin are flour, used freely from the dredging-box, a mixture of starch and oxide of zinc, with or without camphor, in addition to fullers' earth, lycopodium, and oatmeal. These powders should be freely applied, so as to form a constant coating to the morbidly sensitive skin. Sometimes these remedies do not agree. Then a lotion made of three drachms of calamine powder, and the like of oxide of zinc, with two drachms of glycerine and six or eight ounces of lime-water, Mr. Wilson said, is often efficacious, and particularly where the surface commences to exude, and is irritable. The soothing plan of treatment should be kept up until the disease showed a tendency to lapse into the chronic stage, at which time the benzoated oxide of zinc may be regarded as the most efficacious medication. It should be used so as to form an impervious layer, and this layer should not be much disturbed by washings and cleansings. The benzoated oxide-of-zinc ointment Mr. Wilson regards as a "specific" for eczema in the advancing stages. He is in the habit of mixing with it a little spirits of wine in the proportion of a drachm to the ounce. The best guide as to the continuance of a remedy or plan of treatment is the patient's sensations as to comfort or discomfort produced. The soothing treatment is applicable as a palliative to the early and acute stages, or such as are characterised by heat and itching, or redness and moist excoriation. But a different kind of medication—one calculated to stimulate and rouse the tissues to a healthy action—is needed where infiltration and desquamation are the main conditions present. The zinc ointment will soften, heal cracks, and remove the scaliness in all cases; but something more is needed to meet infiltration. The best stimulants for the removal of deposit, and to rouse the tissues to activity, is soap. In the chronic cases soap should be freely used with such friction as will enable its action to influence the vascular tissues, the part after free soaping being dressed with zinc ointment. The direct consequence of the soap treatment is an exudation from all the tissues, which are emptied (by a repetition of the drain caused by the stimulation) of exudation. Potash, mercurials, tar, croton oil, and strong nitrate-of-silver solutions act in a similar manner. For pruritus, the best remedies are lotions of soda, and the like, of prussic acid, opium, and of hot water, but also drugs that act constitutionally upon the nervous system. For lichen urticatus and its itching Mr. Wilson commended Hebra's prescription as a specific—viz., one ounce of soap, one ounce of pyroligneous oil of juniper, one ounce of alcohol, and five ounces of fluid. For the itching of lichen planus Mr. Wilson gives an emulsion of bitter almonds with bichloride of mercury or prussic acid. For eczema of the eyelids a weak nitrate-of-mercury ointment; for eczema of the scalp, nitric oxide-of-mercury ointment, with benzoated lard in the proportion of one part in three; for dermatitis exfoliativa, the linimentum calcis.

A few remarks were made at the end of the lecture on the constitutional treatment of the disease, which varied with the age and constitution of the patient. In all cases eczema was associated with lowered vitality. In infancy invariably with defective nutrition and deficient feeding; in mid-life with mal-assimilation; and in late life with mal-assimilation associated with irritability, waste, and decay. Every cause of exhaustion occurring in the growing periods should be met and treated. The particular specific for eczema is, in Mr. Wilson's opinion, his well-known ferro-arsenical mixture.

LECTURE VI.

The treatment of eczema infantile formed the topic of the concluding lecture. Mr. Wilson said it may be summed up in a few words. Every part of the inflamed surface must be coated over with the oxide of zinc ointment. The diet should be carefully scrutinised, so as to secure its nutritive capacity. Fowler's solution should be administered in doses of one or two minims with the meals, and the state of the bowels carefully regulated. In reference to any supposed derivative influence of eczema, there need be no more hesitation in the arrest of its discharges than would be felt in putting a stop to chronic diarrhœa. Nevertheless, there should be as little remission of caution in the treatment of this as of any other disease. Eczema infantile is often complicated with bronchitis, and it offers no safeguard against the usual convulsive diseases of children.

Eczema in childhood and youth demands a similar principle of treatment and similar care to that already prescribed for eczema infantile. The disease is often aggravated, and rendered persistent, by the defective regimen of schools. In adult life the predisposing cause of eczema may present a series of disorders and infirmities which demand our attention equally with the local affection. But there is no period of more interest than that of full maturity of the body, when eczema presents itself chiefly as a disorder of the digestive organs, or comes to us as an accompaniment of deranged function of the liver. In these latter examples it is no longer needful to search out the most nutritive diet, but rather to shear it of its redundancy. The regulation of the digestive organs quickly induces an improvement in the eruption, and this is to be followed by tonic remedies, and at a later period notably by arsenic. It may be accepted as an axiom that whatever strengthens the body, and restores the health, will at the same time be the best cure of eczema.

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PIROGOFF ON SOME POINTS CONNECTED WITH THE WAR.

THE Russian military surgeon, Pirogoff, of Sebastopol renown, has lately published some observations in the *Journal de St. Petersbourg*, in which he recounts the results of his experience during the present war. The French wounded, he says, up to a certain point, were placed under somewhat analogous conditions to those at Sebastopol. At Strasbourg the operations did well when the operations were effected immediately after the wounds, whilst in Germany they did not attain to a tenth of these results. Resections of the foot, which were numerous, were very satisfactory; those of the knee were less numerous, and followed, as might be supposed, by very inferior results. Except at Strasbourg, Pirogoff appears to have seen very few wounded that had been struck by large projectiles. There were equally few cases of injuries of the head, and he saw only one example of wound by mitrailleuse. The subjects of these injuries commonly perish on the field of battle. The injury caused by the chassepôt is less grave than that by the minié-ball. Chest wounds, where the ribs were not involved in the damage, were often cured. He thinks that limbs have been preserved by conservative surgery which would have been sacrificed in former times. Experience since the Crimean War has demonstrated the bad results of thigh and leg amputations—a mortality of from 60 to 90 per cent., or 75 per cent. at the least. Pirogoff advocates a simple and expectant treatment in the case of gunshot fractures of the femur, and he says that such treatment frequently gave good results in cases where a fatal issue has followed the practice of amputation of the thigh. He attributes the success of expectant treatment to the better transport employed, notwithstanding its many defects, to the greater use of fixed immovable bandages, to the greater care and skill of the surgeons in attending to the position of injured limbs, &c., and to the improved system of hygiene in force.

One of the points on which Pirogoff especially dwells is well deserving of attention. According to the Russian system, medical officers go to the front under fire with their men. Advancement and honor attend on a military and not a medical career. Since the commencement of the war seven medical offcers have been killed and fifty wounded. The Prussian regulations led to great difficulties in getting medical aid for the wounded. At first, in the German army, not more than ten or twelve important operations were performed on the field of battle, and the wounded did not receive help until they had been conveyed to some distance. After Gravelotte, 10,000 wounded men were conveyed away in country carts, journeying two days and nights without proper surgical help or dressings, and an utterly inadequate number of medical officers to attend on them. Professor Langenbeck had some 3000 wounded brought to him. He was aided by only two assistants. Military ardor is not by any means confined to the Prussian medical service. English surgeons accompany their regiments into action, and, to their credit be it said, do not shirk exposure to danger. Still, there can be no doubt that a doctor's duty is with the men who have been wounded. There is quite sufficient desire to be "well in to the front" without encouraging it in any way.

Pirogoff declares that the organisation of societies for aid to the wounded must be made in time of peace, and not in time of war. England, America, and Holland managed to place hospitals, already organised, at the service of the wounded, accompanied by a full complement of doctors, sick attendants, necessary *matériel*, &c. He considers that the great aim should be to organise hospitals capable of easy and speedy removal, and he speaks highly of third and fourth class waggons, with pharmacy and *cuisine*, capable of holding twelve or sixteen persons in each. Pirogoff considers that the huts so commonly erected and utilised in Germany for hospital purposes labor under several disadvantages, such as their being fixed, and their light construction rendering them useless for winter and autumn. In the summer tents could be employed. The ventilation in huts is insufficient to preserve the inmates against hospital contagion, as has been demonstrated at Berlin. It ought to be remembered, however, that the huts employed in the war were generally overcrowded. Pirogoff is opposed to large hospitals, but the Russian administration nevertheless continues to construct these of two or three stories. They are difficult of ventilation, and the results obtained in them are unsatisfactory. Single-stored hospitals, with large area for patients, or huts, are to be recommended in preference.

Pirogoff, on the whole, seems to prefer a very cheap style of hut, that may be entirely adapted to a country so cold as Russia, for instance. They are constructed of the trunks of trees disposed wide apart, with a double coating, outside and in, of clay and chopped straw for the walls. They are thus well defended from cold, and very comfortable, as Pirogoff testifies from personal experience. This will remind military readers of the native huts in India. They would not, in our opinion, prove healthy for hospital purposes in temperate regions.

We have, it is to be feared, exhausted our readers' patience, but not by any means all the points contained in Professor Pirogoff's papers. He considers that the chief object of aid societies should be to acquire hospitals in time of peace such as should be easy of transport by rail. He shows how important it is, too, to settle all about the position and discipline of members of volunteer aid societies; in other words, how to adapt private assistance to official medical administration.

Foreign Gleanings.

HYPERDERMIC INJECTIONS OF CALOMEL IN SYPHILIS.

THE *Lyon Médical* (Feb. 19th, 1871), quotes from the *Rev. Clin. de Bol.*, 1871, some cases thus treated by Dr. Soresina. Sometimes a couple of injections of calomel suspended in glycerine were sufficient. The cases were eight in number, and ran in the following manner:—1. Complete paralysis of the third pair of the left eye, with a few other syphilitic symptoms; cure. 2. Punctuated keratitis, left syphilitic iritis, plastic exudations in the lower part of the pupil, posterior synechia with irregular pupil; cure. 3. Double retino-hyaloiditis, complete amaurosis on the right side, left amblyopia with strabic deviation of the axis of vision when the eye was fixed, and loss of central vision; improvement, with recovery of central vision on the left side, and perception of light on the right side. 4. Syphilitic neuro-retinitis; cure. 5. Double syphilitic iritis with posterior synechiæ; cure. 6. Syphilitic iritis; cure. 7. Posterior syphilitic iritis; cure. 8. Amaurosis on the right side, left amblyopia from progressive atrophy of the ocular extremity of the optic nerve; slight improvement, followed by a stationary condition. These results are so fine that the mind feels in doubt. Nothing but a most detailed account of the cases would be satisfactory.

THE FISHY TASTE OF OIL MODIFIED BY COFFEE.

Carlo Pavesi mentions, in the *Journ. de Pharm. de Turin*, that twenty parts of cod-liver oil should be mixed with one of burned and ground coffee, and half a part of purified ivory black. This mixture is placed over a water-bath (50° or 60°) for a quarter of an hour, the bottle being well corked to prevent the escape of the volatile principle of the coffee. The vessel being removed, the contents are allowed to rest for three days, occasionally stirred, and the whole is filtered through paper. The oil turns out very clear (amber color), and is to be kept in well stoppered bottles. The smell and taste remind one of coffee with a slight smack of fish, which latter is not at all disagreeable.

News Items, Medical Facts, &c.

WELL-TRAINED MUSCLES.—The directors of the polytechnic Institution profess to combine instruction with amusement, and we think successfully; but the entertainment now provided for visitors is most remarkable as affording examples of the surprising results which careful and prolonged training has on the muscles of the human body. A remarkable performance on the slack wire serves to show the precision to which the art of balancing the body without the aid of a pole, and therefore by muscular effort only, can be carried. A performance by a German on sixteen drums, with an unlimited number of drum-sticks, is a good illustration of rapid and dexterous adaptation of muscular effort to the object in view; and the performance certainly justifies the two former, if not the last, of the epithets in the programme which speaks of the "astonishing, vigorous, and harmonious performance." But the most surprising muscular effort is that of a lady who represents statues in white marble,-being successively posed in various statuesque attitudes with her skin and drapery appropriately whitened. What struck us most was the absolute rigidity with which the performer maintained by no means easy attitudes with one or both arms extended; the perfect immobility of the bust, too, was very remarkable. That this fixity was not due to artificial aids was shown by the sudden transformation of the last of the statues into a living women, even if any doubt had arisen on the subject before, which was not the case. We could wish that the secret of such steadiness of limb were transmissible to some of our professional brethren, whose chirurgical hands occasionally evince an unsteadiness in trying moments in some of our hospital theatres.

DIEULAFOY'S ASPIRATION SYRINGE.—This ingenious instrument has been proposed and used by Dr. Dieulafoy for removing, subcutaneously, various pathological secretions and effusions. As usual, priority has first been disputed in France, where the instrument has been invented; then we find Dr. Bresgen (*Alleg. Med. Cent. Zeit.*, April 19th) pointing out that, in September, 1869, he published a pamphlet in which the identical syringe is depicted, the latter having been used in the case of the Crown Prince of Belgium. Dr. Bresgen maintains that Dieulafoy, by some modifications, spoiled the instrument. Nor should it pass unnoticed that the aspirator made by Mayer and Meltzer, of Great Portland-street, under the name of Dr. Protheroe Smith's apparatus, is essentially analogous to the syringe under consideration.

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PRACTICAL PHYSIOLOGY.

Lectures
ON
EXPERIMENTAL PHYSIOLOGY.

By Wm. Rutherford, M.D., F.R.S.E.,

Professor of Physiology in King's College.

LECTURE VI.

INNERVATION (continued).

Gentlemen,—Let me remind you that the functions of centrifugal or efferent nerves may be—1, motor; 2, secretory; 3, trophic. Those of centripetal or afferent nerves may be—1, sensory; 2, excitant for reflex actions; 3, inhibitory. And possibly all these functions are discharged by intercentral nerves. (See Lecture V.)

Motor Nerves.

I need show you nothing further regarding motor nerves. You have often seen the leg of a frog thrown into convulsions by irritating the sciatic nerve. Last day you saw the diaphragm convulsed by stimulation of the phrenic. These are examples of *spinal* nerves. But you have also seen that *sympathetic* nerves may have a mortor function. You witnessed experiments which showed that the cervical sympathetic is motor as regards the radiating muscular fibres of the iris and the walls of bloodvessels. We saw the pupil dilate and bloodvessels contract when the nerve was excited. The innervation of the vascular system will occupy us on another occasion; meanwhile let me say that the motor nerves for the bloodvessels are termed vasomotor, while those for the heart are termed cardiomotor nerves. They cause contraction of the heart and bloodvessels; they belong to the sympathetic system. So much for motor nerves. I shall now proceed to show you that there are nerves which, when stimulated, cause glands to secrete.

Secretory Nerves.

The glands which serve most conveniently for this demonstration are the salivary glands. The dog which you see on the table is thoroughly narcotised by opium. In order to do this I simply injected some tincture of opium into its external jugular vein. I have inserted a long glass tube into the duct of one submaxillary gland. I have exposed the chorda tympani nerve going to the gland, and have also separated the cervical sympathetic nerve from the vagus below the superior cervical ganglion. Let me tell you that in the dog and cat the sympathic and vagus form a single trunk in the neck, instead of two, as in man and in the rabbit. In the cat it is easy to separate the two nerves; but in the dog it is much more difficult, excepting near the superior cervical ganglion, where the isolation may be effected easily enough with a little care. I have done all these things beforehand, because they require nearly half an hour, and the dissection could not have been seen by more than two or three of you. If you come and examine the parts exposed, you will have no difficulty in understanding the simple dissection which I have made. When you make it, just remember that you have to deal with things which will not bear any but the most delicate handling. I now divide the chorda close to the gustatory nerve, and the sympathetic about an inch below the superior cervical ganglion. These nerves are both secretory nerves for the submaxillary gland. We shall now stimulate them in order to see the effect of their action upon the secreting structure. I make the induced currents from Du Bois Reymond's machine (Lecture II.) just strong enough to be felt by the tongue. Just glance at the gland and observe the amount of vascularity. I now stimulate the distal end of the chorda tympani. Observe how rapidly the long glass tube is becoming filled with saliva....... You see that it is now dropping with considerable rapidity from the end of the tube. Those of you who are near enough may observe how much more vascular the gland is now as compared with what it was before we began the stimulation of the nerve. I now stop the irritation. The effect continues for a little while: that we shall allow to pass off.......... I now stimulate the upper end of the cervical sympathetic. You notice that the irritation causes the saliva to drop from the tube, but not nearly so fast as when the chorda was irritated. Notice how different is the vascularity of the gland during this irritation as compared with the former. It is far less now than it was during the chorda stimulation. It is even less than it was previous to the sympathetic irritation. We shall pursue this subject further when we study secretion more particularly; meanwhile I would point out that nerves may cause a gland to secrete, or at any rate may increase its secretion, probably by an action on its vessels, and also by an action on its secreting cells. If the nerves cause vascular dilatation, it is easily conceivable that the increased amount of blood with which the gland is supplied may have an important influence on the amount of its secretion. In the kidney, perhaps, more than in any other gland—as we shall afterwards see—do changes in vessels and in the amount of blood regulate the amount of secretion. In the salivary glands, however, the increased secretion which follows irritation of the sympathic takes place in spite of *contraction* of the bloodvessels brought about by the nerve. On this account the increased secretion is attributed to an action of the nerve upon the secreting cells; the more so because an active proliferation of the gland-cells takes place during the irritation of the nerve, and the saliva in consequence becomes loaded with salivary corpuscles. The bloodvessels of the gland are dilated by irritating the chorda; the saliva secreted during the irritation is thin and watery, unlike the sympathetic saliva, which is tough and viscous. Does the chorda saliva result simply from dilatation of vessels and not from a direct influence of the nerve upon the secreting plasm? No! The mere dilatation of vessels and increased supply of blood will not explain it. During irritation of the chorda the pressure of the saliva within the duct of the gland can rise above that of the blood within the arteries. Hence the secretion cannot be regarded as a mere filtration through the walls of the capillaries. Here, as in the case of the sympathetic, the nerve irritation occasions an active proliferation of the gland-cells. How the nerve influence gets to the secreting plasm is a question to which we dare not as yet give a definite answer. Pflüger says he has traced nerves into gland-cells in both the submaxillary gland and liver. Other observers have not, however, been able as yet to confirm this.

Trophic Nerves.

Some authorities oppose the idea of trophic or nutrient nerves; that is, of nerves which preside over the nutrition of the textures. They point to plants, and animals with no nerves, and say, inasmuch as nutrition goes on well enough in these cases, why should nerve influence have anything to do with the nutrition of a tissue in animals possessed of a nervous system? I shall not waste your time in replying to an argument so fallacious, for you will presently see that there is reason for believing that nerves influence the nutrition of some textures at any rate. The amount of blood supplied to a part has probably an important influence upon its nutrition. Certain nerves regulate to a large extent the blood-supply. In this way they may therefore influence nutrition. These nerves have, however, only an indirect influence upon nutrition; they are not trophic or nutrient nerves in the sense to which those terms are generally restricted in this connexion. By trophic nerves we mean those which have a direct action upon the tissue. Hermann, in his Text-book of Physiology, says that the only unequivocal fact in favor of a system of trophic nerves is one concerning the nutrition of the nerves themselves—to wit, that when a nerve is cut off from its centre it degenerates—e.g., if the posterior root of a spinal nerve be divided on the distal side of the intervertebral ganglion, the part (peripheral) cut off from the ganglion degenerates; that (central) in connexion with it preserves its integrity. If, again, it be cut between the cord and the ganglion the portion (central) cut off from the ganglion degenerates; while that (peripheral) still joined to the ganglion remains intact. These experiments we owe to the late Dr. Angustus Waller. The results appear to show that the intervertebral ganglia are trophic centres, which preside over the nutrition of the afferent fibres of the spinal nerves. Similar experiments seem to show that the trophic centres for the efferent fibres are in the spinal cord. Perhaps you may feel inclined to say, "I don't see how these facts show that the degenerations are due to the loss of a trophic influence exerted by certain nerve-cells. Why may not the results be due to interference with the function of the nerve-fibres, or a disturbance in the vascular supply to certain parts of the nerves?" Well, it is true that if you keep a nerve at rest for a long time it degenerates; but this fails to afford an explanation of why it is that the *peripheral*, and not the *central*, end of the posterior sensory root of the spinal nerve degenerates when a cut is made on the peripheral side of the intervertebral ganglion. If any part of the nerve is kept in action after such a lesion it ought to be the part on the peripheral side of the ganglion; that is, the part cut off from it—the very part which degenerates. Touching the effect of the lesion on the blood-supply, you will see how difficult, nay, indeed impossible, it would be to account for the results on this ground, when I simply say that division of both roots of the spinal nerve *close* to the cord, let us say, produces, first, degeneration of the *afferent* fibres *inside the cord*, while the *efferent* fibres in the *same situation* remain unchanged; second, degeneration of the *efferent* fibres outside the cord, while the *afferent* fibres remain unchanged. I cannot see how such results can be explained by supposing that the lesion produces a vascular disturbance which is not common to both sets of fibres. The great and indeed almost the only vaso-motor centre in the body appears to be in the medulla oblongata. The vaso-motor nerves pass down through the cord, and leave it with the spinal nerves. When, therefore, we divide a spinal nerve in the manner I have just described, we paralyse the vessels on the peripheral side of the section, just as much for the afferent as for the efferent nerve-fibres. It seems to me that we cannot regard hyperæmia of the nerve as the cause of the degeneration when we find side by side degenerated efferent nerve-fibres and unchanged afferent fibres. We are therefore, I think, compelled to believe that at any rate some nerve-cells exercise a trophic influence upon their nerve-fibres. This degeneration of nerve-fibres, produced by cutting them off from their trophic centres, is an important matter from more than one point of view. It has an especial importance in experimental physiology. We can use it as a mode of tracing the distribution of nerves. Indeed, it is commonly spoken of as the Wallerian method of doing this. In illustration of its value I would allude to the dispute as to whether the chorda tympani ends in the submaxillary ganglion, or sends a branch to the tongue. Vulpian divided nerve some distance behind the ganglion, permitted the animals to live for some time, and then submitted the parts concerned to a microscopical investigation. He found numerous fibres in a state of fatty degeneration proceeding to the submaxillary ganglion, but none going to the tongue or elsewhere. He therefore concluded that the nerve ends entirely in the ganglion. In this connexion be good enough to very particularly remember that degeneration of a nerve may result *not only from the suspension of some trophic influence, but also, it would appear, from pure inaction of the tissue.* You will fall into confusion if you fail to observe this point. We, however, want to know more regarding it. We want a precise answer to this question. To what extent can the degeneration of a nerve *cut off from its trophic centre* be prevented by exercising it?

But it appears to me that we have additional examples of trophic nerves in the filaments of the chorda tympani and sympathetic which preside over the salivary secretion. We have seen that everything points to this, that these nerves cause secretion by acting on the secreting plasm directly. They cause increased growth of the cell elements. The influence appears to be trophic. There are many other facts which have been advanced in support of the idea of trophic nerves ruling nutrition everywhere—e.g., inflammation of the eye after section of the ophthalmic branch of the fifth nerve. True, this has been ascribed by Snellen and Büttner to loss of sensibility, and the consequent entrance of foreign matters within the eyelids. As shown by Meissner and Schiff, however, the inflammation follows a partial section of the nerve, which leaves the sensory fibres intact. Quite recently, Sinitzen has found that the inflammation does not follow if the bloodvessels of the eye be paralysed by removal of the superior cervical ganglion. It therefore seems probable that a vascular disturbance, and no mere interference with trophic influence, is the cause of the perverted nutrition, which follows the lesion I have just mentioned. This difficulty of separating the vascular from the trophic disturbance in such cases is the cause of the obscurity which yet hangs over many of the facts regarding trophic nerves. Much yet requires to be done ere we can judge of the extent to which nerves influence the nutrition of the tissues generally. So much for centrifugal nerves. Let us now study in a general way those which are centripetal.

Sensory Nerves.

[Under this head some general questions regarding sensory nerves were discussed, and the mode of estimating the amount of ordinary sensibility in a part was demonstrated. It was shown that this may be done by Weber's method of ascertaining how close the points of a pair of compasses may be approximated and yet recognised as two distinct points when applied to a part endowed with tactile sense. It was further pointed out, however, that when it is our object merely to compare the sensibility on one side of the body with that on the other, we can most readily arrive at a reliable conclusion by stimulating the skin—e.g., by means of faradic currents.]

Reflex Action.

The second division of centripetal nerves consists of those which convey influence to excite reflex action. By reflex action we mean an involuntary action which results from the excitation of a centrifugal nerve by an influence transmitted to it through a centripetal nerve. We cannot as yet be certain of the nerve apparatus concerned in reflex action; but the diagrams which I shall now draw represent the probable nerve arrangements.

FIG. 17.

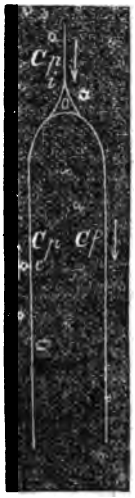
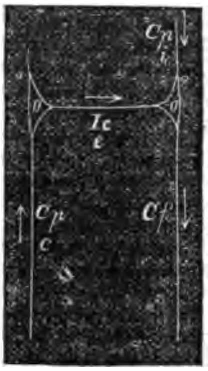


FIG. 18.



Figs. 17 and 18. Two diagrams of the probable nerve arrangements concerned in reflex actions.—*C f*, Centrifugal nerve. *C p e*, Exciting centripetal nerve. *C p i*, Inhibitory centripetal nerve. *I c e*, Intercentral nerve conveying the exciting influence from the afferent to the efferent cell. The arrows indicate the directions in which the influences pass. (The action of the fibres *C p i*, is discussed further on.)

Possibly there are reflex actions in which only a single nerve-cell is concerned (Fig. 17), both centripetal and centrifugal nerve-fibres being connected with this cell. We are led to suppose that this is the case from observing that in the spinal cord of some fishes—e.g., the salmon—afferent and efferent nerves are both connected with the same cell. In the higher animals, however, these nerves appear to be generally connected with different cells. Hence I shall make another diagram (Fig. 18), in which we shall join the afferent nerve (*Cp e*) to one cell, and the efferent nerve to another. We must, of course, put in an intercentral fibre to connect the two cells. I now put arrows near the nerves in order that you may see at a glance how the influence travels. You have only to study them for a moment in order to understand why this class of actions has been termed *reflex*. By some physiologists these actions are also termed *automatic*; but by others the term automatic is applied only to actions which result from the apparently spontaneous evolution of energy within the motor cells, there being no centripetal stimulus, as in the case of reflex action. To avoid confusion, I advise you to always employ the term *reflex* instead of *automatic* when you mean *reflex action.*

The centripetal influences which cause reflex action may start from almost any tissue. The skin, mucous membranes, and muscles are perhaps their most common sources. The centrifugal nerve-fibres may convey their influences to (1) contractile tissues, in which case the action is designated *diastaltic*, *excito-motor*, or reflex motor; or (2) glands may be the termini of the efferent influences, in which case the action is termed *excito-secretory*, or reflex secretory. These two reflex actions are certain, but much obscurity hangs over a third class termed *excito-nutrient* or *excito-trophic* actions—that is to say, actions in which increased nutrition of a tissue is brought about reflexly. All that I have said regarding trophic nerves applies equally to *excito-trophic* action. Excito-secretory actions are to a large extent excito-nutrient actions, because here in some cases—e.g., in the salivary glands—increased growth of a tissue is brought about reflexly. The growth of the beard and mammæ at puberty, and the enlargement of the latter during gestation, are possibly also examples of excito-nutrient action, though here we encounter the difficulty of deciding whether in these cases the increased growth of tissue is due to a reflex trophic stimulation of the tissue, to dilatation of the vessels brought about by an inhibitory influence whose mode of operation I shall afterwards explain, or to a peculiar state of the blood.

It is only since the time of Marshall Hall that physiologists have fairly recognised the distinction between voluntary and reflex actions. Several physiologists, long before Hall, hinted strongly at this distinction; but Hall was the first to place the matter in the light in which we regard it to-day. Strange to say, he arrived at a conclusion which some of his facts by no means warranted. The conclusion happens to be right, but I do not know that he would ever have come to it if he had examined his facts more carefully. You will readily appreciate my meaning when I show you the following experiment. Observe this frog. It is regarding our manœuvres with a somewhat lively air. Now and then it gives a jump. What the precise object of its leaps may be I dare not pretend to say; but probably it regards us with some apprehension and desires to escape. I touch one of its toes, and you see it resents the molestation in a very decided manner. Why does it so struggle to get away when I pinch its toes? Doubtless, you will say, because it feels the pinch and would rather not have it repeated. I now behead the animal with the aid of a sharp chisel......The headless trunk lies as though it were dead. The spinal cord seems to be suffering from shock. Probably, however, it will soon recover from this......Observe that the animal has now *spontaneously* drawn up its legs and arms, and it is sitting with its neck erect just as if it had not lost its head at all. I pinch its toes, and you see the leg is at once thrust out as if to spurn away the offending instrument. Does it still feel? and is the motion still the result of volition? Marshall Hall said *No*. Pflüger, Lewes, and Goltz would have us say *Yes*. According to Hall, *the decapitated animal does not move* unless it be excited from without in some way I am at a loss to conceive how Hall arrived at this conclusion. I shall never forget the lesson I received regarding this matter at the first demonstration I ever gave on reflex action. Having been taught that Hall had made this statement, and that on this fact he had based the distinction between reflex and voluntary action, I did not doubt that he was right. So I decapitated my frog, and said, "We shall now see that the animal will remain perfectly at rest until its afferent nerves are stimulated." These unlucky words had scarce been uttered when, to my dismay, and the amusement of all who heard me, the headless frog, without any apparent provocation, suddenly bounded from the table, and thereby contradicted both Marshall Hall and me in a manner which was decided enough. That was in 1866. In the same year Professor Norris observed this phenomenon, and I have often since that time repeated the observation, *that a decapitated frog may move without any apparent cause of excitement*. The only explanation which I can offer of Hall's mistake is that he may have operated on weak instead of strong, healthy frogs. In the former these spontaneous movements are not so apt to occur.

But though Hall's experiments regarding reflex action were imperfect, he undoubtedly made a happy hit when he separated the class of reflex actions from those which are voluntary. We shall presently study spinal reflex actions more particularly; but, seeing that the involuntary nature of some of these actions is disputed, I would first of all direct your attention to reflex actions which all admit to be involuntary. Secretions are often affected by certain thoughts, but they are nevertheless purely involuntary. The abundant flow of saliva which follows the introduction into the mouth of such substances as ether and vinegar, is due to an influence passing from the oral mucous membrane through branches of the fifth and glosso-pharyngeal nerves to the submaxillary ganglion and medulla oblongata, and from thence to the salivary glands. The nerve-centres are in the medulla and submaxillary ganglion; the centripetal nerves are in this case the fifth and glosso-pharyngeal; while the centrifugal nerves are the chorda tympani, and possibly the sympathetic. That is an example of an excito-secretory action. These reflex secretory actions were first pointed out by Dr. Campbell, of America, after Marshall Hall had written upon *excito-motor* actions. We have an excellent example of a pure excito-motor act in the passage of the food through the œsophagus. This movement is quite independent of sensation and volition. The influence is produced by the contact of the food with the mucous membrane of the gullet. The nerve-centre is in the medulla, and the centripetal and centrifugal nerves are both contained in the œsophageal branches of the vagus. Destruction of the medulla, or section of the vagi above the origin of the œsophageal nerves, completely prevents the movement. I might multiply similar examples, but I refrain from so doing as I am anxious to return to the case of those movements which we observed in the decapitated frog. I pinch the foot of the same animal again, and you see that the animal still resents the stimulation. The influence produced by my pinch does not pass to the muscles of the leg directly, but indirectly, through the spinal cord. I thrust a needle down the spinal cord, and disorganise it....... The limbs are now flaccid....... We may wait as long as we please, but a pinch of the toes will never again cause the limbs of this animal to move. Do not imagine, however, that the shock produced by lacerating the cord has destroyed the contractility of the muscles. I denude the animal, and stimulate the muscles....... You see that they have not lost their contractility. Again they contract when I stimulate the motor nerves which supply them, showing that the *motor* nerves, at any rate, have not lost their excitability. I have no means now of proving the same fact regarding the afferent nerves, but we may safely conclude that what is true of the efferent in this respect is also true of the afferent fibres, and therefore that we now fail to obtain excito-motor action because of the destruction of the spinal cord.

I take another frog. In this case I open the cranium and remove the brain and medulla oblongata. I do this instead of cutting off the head, in order to avoid hæmorrhage as much as possible. I thrust a pin through the nose, and hang the animal thereby to a support so that it can move its pendant legs without any difficulty....... I gently pinch the toes:...... the leg of the same side is pulled up....... I pinch the same toes more severely:...... both legs are thrown into motion. It is generally observed that if the toes be slightly irritated, the leg on the same side is moved; if the irritation is more severe, both legs are moved; when it is still stronger, the arms also are moved. The motor nerves of the segment of the cord whose afferent nerves are stimulated are most affected, but the influence may extend to the motor nerves of the whole cord. The movements are not, however, very vigorous. In fact, this mechanical irritation does not produce a very marked effect. The cutaneous nerves of the frog are extremely sensitive to acids; so I put a drop of acetic acid on the outside of one knee....... This, you see, gives rise to most violent movements both of arms and legs; and notice particularly that the animal is using the toes of the leg on the same side for the purpose of rubbing the irritated spot....... I dip the whole animal into water in order to wash away the acid, and now it is all at rest again. I put a drop of acid on the skin over the lumbar region of the spine....... Both feet are instantly raised to the irritated spot. The animal is able to localise the seat of irritation....... I wash the acid from the back, and I amputate one of the feet at the ankle....... I apply a drop of acid over the knee of the footless leg.......... Again the animal turns the leg towards the knee, as if to reach the irritated spot with the toes; these, however, are not now available. But watch the other foot. The *foot of the other leg* is now being used to rub away the acid. The animal, finding that the object is not accomplished with the foot of the same side, uses the other one. Let me tell you, though, that this part of the experiment often fails to yield this result so clearly as you have just witnessed. Frequently the other foot is moved about without being directed to the very spot where the acid is on the other leg. This interesting experiment was first performed by Pflüger. How shall we interpret the results. On first thought they appear to show not only that a brainless frog can feel, but that it can exercise volitional power. The movements which followed the application of the acid were eminently purposive—that is, directed to the accomplishment of an object; and when this is taken in connexion with the fact that a brainless frog often moves spontaneously, it really looks as if the animal can still voluntarily direct its movements. Lewes, Pflüger, and Goltz do not hesitate to say that it can; but here there is need for much caution, as you will presently see. In man the spinal cord has by accident been divided in several instances. In some cases the part of the spinal cord cut off from the brain has been quite paralysed by the injury. This is scarcely to be wondered at, for in warm-blooded animals generally any injury produces a far deeper effect upon the nervous system than it does in cold bloods. It has happened, however, that after such an injury titillation of the soles of the feet produced violent movements of the legs, which were not only not willed by the individual, but could not, indeed, be prevented by him. Moreover, he was quite unconscious of any irritation applied to the parts supplied with nerves from the paralysed portion of the cord. This fact is by many thought to be sufficient to indicate that the movements which you have seen in the frog are not connected with sensation or volition; but I dare say some of you will not fail to perceive that the experiment on the man is, after all, not so satisfactory as it appears at first sight to be. If we cut the spinal cord away from its connexion with the medulla and brain, it has nothing but the movements of the limbs &c. wherewith to give expression to its condition; it has, as it were, no longer the advantage of a suitable mouth-piece wherewith to inform us of its state. It appears to me that we derive greater assistance in arriving at a right conclusion regarding this matter from a consideration of what passes in the uninjured human body. We frequently perform movements of a highly complex and purposive character without our being conscious of the fact. Indeed, the nerve-centres may become so educated that almost any movement, however complex and however much the result of voluntary effort at one time, may come to be performed unconsciously. We see this in walking, riding, using a walking stick, in reading aloud, and in many other instances. Of all these, reading aloud strikes me as the most remarkable. I dare say many of you must have observed when reading aloud that your mind sometimes wanders into a train of thought very remote it may be from the subject of your book. You go on reading, you turn the leaf when the proper time comes, and a listener may have fully appreciated what you have been saying, although you may have been quite unconscious of the impression produced by the type through the optic nerve, or of the movements necessary in pronouncing the words. Such examples of reflex action should, it seems to me, cause us to hesitate ere we conclude that the movements we have witnessed in the decapitated frog indicate consciousness. I am not prepared to speak dogmatically regarding this point. I admit that many of the movements of decapitated frogs are apparently spontaneous, and that the motions which follow the application of an irritant to the skin often appear to indicate not a little consideration; but apparently spontaneous movements which are not the result of volition often occur in man, and his reflex actions also often appear to indicate not a little thought, although we know that they are non-voluntary. Therefore I think it too hasty to conclude from our present knowledge that the reflex movements of decapitated frogs indicate that the spinal cord is a seat of consciousness.

Inhibitory Nerves.

Inhibitory nerves restrain or diminish action. An excellent example of this kind of nerve influence is to be found in the vagus. The vagus has been exposed in this dog which we used for the salivary experiment. The animal is still deeply narcotised; so, in order to show you the cardiac movements readily I push through the thoracic wall into the chest a fine needle having a straw sealed to its head. You see that every cardiac systole is causing a violent movement of the long straw. Now I divide the vagus about the middle of the neck, and faradise the lower end. The cardiac movements become much slower, and even cease for a time. I shall now open the thorax in order to show you the state of the heart during the nerve irritation...You see that when the heart is stopped it is not thrown into a state of spasm, but into a state of complete relaxation. It is in fact brought to rest. There are inhibitory nerves which produce dilatation of bloodvessels, just as the vagus dilates the heart. These nerves are contained in the vagus, and in the spinal nerves generally; they do not, however, transmit their influence directly to the bloodvessels, as the vagus does to the heart; but these influences are almost always conveyed to the medulla oblongata, or at any rate to the cerebro-spinal axis. We find the probable explanation of this in the fact that the ganglia which immediately preside over the movements of the heart are placed within the heart, while those which rule the bloodvessels are nearly all placed in the medulla. Inhibitory nerves seem always to convey their influences to certain nerve-centres, and they apparently act by diminishing the action of these centres. It has been shown that the vagus is connected with the cells of the intracardiac ganglia. It is therefore highly probable that its inhibitory influence is exercised upon the cells. Indeed, we best understand inhibitory nerve action when we assume that it is an action which retards or altogether arrests the energising of certain nerve-cells. Inhibitory nerves to a large extent regulate reflex actions, and therefore I shall add them to the diagrams which I have made (Figs. 17 and 18). In the nerve mechanism where there is only one cell (Fig. 17), I must of course simply attach the inhibitory fibre (*Cp i*) to that cell; but in the other diagram (Fig. 18), to which cell shall we attach the fibre? I prefer to join it to the motor cell, because in the case of the heart there is reason for believing that the rhythmical action is due to the evolution and periodical discharge of energy from this cell without any evidence of its being always, or indeed generally, due to the influence of the exciting fibres (*Cp e* and *Ic e*). We can best understand the inhibitory action of the vagus upon the heart by supposing that it acts on the motor cells. The spinal reflex actions seem to be under the influence of inhibitory nerves. If you strike a man, or perhaps simply touch him or speak to him when he is "off his guard," he may instinctively give a sudden start, which a very powerful irritation may fail to call forth if he resolve to control his reflex movements. In this case he can prevent the reflex action, not by producing some opposing movement, but simply by willing that the movement which tends to be produced reflexly shall not take place. Setschenow, from experiments which I shall on a future occasion explain, has shown that the inhibitory centres which preside over spinal reflex actions are placed in the corpora quadrigemina and optic thalami; perhaps also in the cerebral hemispheres. Inhibitory nerves may be voluntary or involuntary. Those connected with the vascular system are purely involuntary; those presiding over the ordinary spinal reflex actions, and over those portions of the brain which are concerned in thought, may be voluntary, and possibly also involuntary. I have just alluded to the inhibition of thought. This is an important point, and worthy of your deepest consideration. When we control our thoughts, words, and deeds, we voluntary exercise an inhibitory power; probably we call into play certain inhibitory centres in the brain. These centres can by exercise attain to great importance. In some individuals they seem to be much more powerful than in others; and one of the earliest signs in many cases of insanity is a diminution in the inhibitory power of these centres. The mind is thereby rendered less able to control the nerve-processes concerned in thought and muscular movement. We have wandered from mere demonstration to not a little speculation; but if you be induced by what I have said to think deeply over these profoundly interesting points, you will not regret that I have directed your attention specially to them.

A Course of Lectures

ON

DISEASES OF THE BREAST.

Delivered at the Hospital for Women, Soho.

Surgeon to the Hospital for Women, and Assistant-Surgeon to
University College Hospital.

LECTURE I.

THE COMMON DISEASES OF THE BREAST.

GENTLEMEN,—The breast being one of the organs in close relation with the procreative organs of the female, its diseases come properly under the cognisance of the medical officers of a charity devoted to the diseases of women; I need not, therefore, make any apology for having selected these affections as the subject of this course of lectures. Although, for convenience sake, and by the general consent of the profession, the more severe forms of breast disease requiring local operative interference are allotted to the surgeon, yet the simpler though not less important affections more frequently come under the notice of the accoucheur, being often connected with some disturbance of the function of lactation. It must, however, occur to every one, whatever his department of practice, to be consulted occasionally with respect to conditions of the breast, which have excited notice, and perhaps alarm, in the patient's mind; and it is most important that an early decision should be arrived at as to the nature of the affection in all cases, since the treatment, to be of avail, must be adopted before any great amount of structural alteration has taken place. Undoubtedly, pain in the breast is often but a symptom of uterine or ovarian irritation, and its relief can only be effected by attention to those organs; but I do not propose to enter into these questions, which have been already discussed by my colleagues, and shall confine my attention during the present course to those structural changes in the mamma itself which may be strictly classed under the term "diseases of the breast."

Omitting any lengthened allusion to those anomalies of development of the breast, as regards position of the organ itself, the development of an unusual number of nipples, &c., which are rather matters of curiosity than of practical importance, I will pass on to a condition of *atrophy* of the breast which is a frequent cause of serious trouble to both patient and practitioner. I do not mean atrophy of the breast itself, for this is of rare occurrence, except that senile atrophy which is commonly witnessed with advancing years, but atrophy or want of development of the nipple, which is a not infrequent cause of inflammation, and consequent abscess, when the organ is called upon to fulfill its functions in nourishing a child. It has been laid down that this inversion or want of prominence of the nipple is the result of pressure from a tight corset or dress, but I do not believe this to be the case; I look upon it rather as a congenital malformation, and I venture to call your attention especially to it because I believe that but little notice is directed to it until often too late, whereas with care it may be remedied. Everyone is acquainted with the enlargement of the breast and development of the areola which take place in pregnancy, but it is not always remembered that the nipple is an erectile organ, and that its base is surrounded with a considerable quantity of involuntary muscular fibre which, when properly developed, gives the healthy prominence to the nipples. If friction with oil, or any simple liniment, were systematically applied by primiparæ to their nipples during the later months of pregnancy, the vascularity of the nipple itself would be excited, the development of muscular fibre, and consequent projection of the nipple, would be stimulated, and the patient would be saved much worry from fruitless efforts to draw the nipple out after child-bearing, and would, consequently, be much less liable to suffer from sore nipples and all their painful consequences.

That friction will, if prolonged, induce hypertrophy, not merely of the nipple, but of the breast itself, is shown by a case which came under my notice some years back, in which the lascivious manipulations of a lover extending over many months had resulted in a veritable hypertrophy of the whole organ. This simple *hypertrophy* of the breast—the existence of which has been denied by some authorities—is an undoubted fact, and seems to occur in young unmarried persons without obvious cause. Mr. Erichsen has recorded a case of the kind in a girl of fifteen, in whom the breast was greatly hypertrophied; while Manec, of La Charité in Paris, met with one in a girl of seventeen, both breasts being affected, and weighing after removal 15 lb. and 17 lb. respectively.

I saw a similar case in the practice of Sir William Fergusson some years back, both breasts having grown to such a size as to be a burden to the patient, who gladly submitted to amputation, after having tried every other method of treatment unsuccessfully. It is the general experience in all these cases, I believe, that amputation is the only means of cure. In the first case I mentioned, where the hypertrophy was reasonably presumed to have depended upon sexual excitement, "clitoridectomy" was performed by a surgeon who at that time upheld that operation as a panacea for most female ailments, but without any benefit to the mammary enlargement. Whether unsuspected sexual excitement may have been the cause of the enlargement in other cases of the kind, I am unable to say.

It is, however, when the breast has to enter upon the function of lactation that it becomes of most importance pathologically; and I shall now proceed to speak of those disorders which occur during or after the completion of pregnancy.

And first of *Sore Nipples*. These may depend upon some peculiarity in the constitution of the mother, or state of the child's mouth, but are more frequently the results of simple want of care—first, in not preparing the nipple; secondly, in not caring for it during lactation; and thirdly, in leaving it too long in the child's mouth, the infant being permitted to sleep with the nipple in its grasp. The preparation of the nipple, particularly in first pregnancies, I have already mentioned; but the hardening of the delicate skin covering the organ by bathit with weak spirit should not be omitted in every pregnancy. The care required during lactation is principally that the nipple should be dried after each period of suction; and when there is an involuntary flow of milk in the intervals, the use of a properly shaped breast-glass serves to prevent the nipple being constantly sodden by contact with wet under-linen.

That the tender, moist skin of the nipple may be infected by the secretions of the child's mouth is, I think, undoubted. Thus, a child with thrush in the mouth may induce a painful condition of the mother's breast; whilst a child laboring under congenital syphilis will very probably produce mucous tubercles on the breast of a healthy nurse, whose system may thus become infected. The communicability of secondary syphilis is so thoroughly ascertained that it appears almost unnecessary to insist upon it now-a-days; and the examples of its communication from nursling to nurse have unfortunately been too frequent, especially in France, to admit of argument. Mr. Henry Lee holds that the natural secretions of the body, when the structures producing them are in a healthy state, cannot be the means of communicating syphilis to another person, although the patient from whom these secretions are derived be constitutionally syphilitic, and quotes (Holmes's System of Surgery, vol. i.) in illustration the case of a healthy woman who nursed a syphilitic child with *one* breast, and became affected with constitutional syphilis; whilst her own child, nursed with the *other* breast, remained healthy! This doctrine is, however, too doubtful to be implicitly relied on in practice, in my opinion. It would be the duty of a practitioner to refuse to sanction the placing of a confessedly syphilitic infant with any nurse, unless the latter fully understands and is prepared for the risk she undergoes; and should syphilitic symptoms develop after nursing has commenced it should be immediately arrested, and the child be brought up by hand, rather than allow the nurse to become infected. When a mother is suckling her own child in which syphilitic symptoms develop, it is, I think, of small importance that she should continue to nurse it, for the poison is already in her system, and it will of course be necessary to adopt specific treatment for both mother and child. At the same time, it will be well to protect the nipple with a shield. I have no faith in treating the child through the mother's milk, any more than in the ancient plan of rubbing mercurial ointment into the udders of goats with a view to rendering their milk curative of syphilis. In all syphilitic infants the disease must be treated with mercury, and most satisfactorily by inunction.

In the treatment of the ordinary chapped nipple all sorts of nostrums have been advocated, but I have found nothing so satisfactory as a five-grain solution of nitrate of silver, carefully pencilled on with a camel's-hair brush after each act of suckling. The employment of spirit of nitrous ether as a vehicle, instead of water, has the great advantage of giving a lotion which dries rapidly, and which is not repelled by the greasy condition of the nipple. The use of a shield if the child has an aphthous mouth, or is prone to bite, gives relief, but will not effect a cure without local medication.

The first effect of a soreness of the nipple sufficient to prevent the child being put to the breast is *engorgement* of the organ with milk. Under these circumstances the breast becomes distended and tense, and stands out prominently from the chest-wall. Soon, if unrelieved, the skin becomes œdematous, and inflammation will certainly ensue unless relief be promptly afforded. If the infant, or possibly an older child, can empty the breast through a shield used to protect the tender nipple, the urgency of the case will be at once relieved; but if not, some form of breast-pump must be employed, or recourse be had to gentle but steady pressure, with both hands embracing the breast, and thus squeezing out the milk. Anything like violent manipulation of an engorged breast is much to be deprecated; but steady and even pressure will often give relief. It is certainly advisable to diminish the secretion of milk in the breast; and for this purpose nothing is so certain or satisfactory as the external application of extract of belladonna mixed with equal parts of glycerine. The effect of belladonna, freely applied in this manner, is not merely to relieve pain, but, by causing contraction of the capillaries, to diminish the quantity of blood in the organ and the amount of secretion.* In addition to the local remedy, means should be taken to act upon the bowels; and since cases of sore nipples frequently occur in females exhausted by over-suckling, the combination of tonics with hydragogue cathartics is very useful. The formula I generally employ is, sulphate of quinine, one grain; sulphate of magnesia, four drachms; dilute sulphuric acid, five minims; pimento water, one ounce: every six hours.

If engorgement goes on unrelieved for over twenty-four hours, inflammation is pretty certain to supervene, the constitutional symptoms of which are generally well marked: the patient's skin is hot, there is great pain and tension of the breast, the pulse is hard and frequent, and the tongue coated. If seen before the occurrence of a rigor, by which the formation of matter is generally announced, the treatment for this condition will be the same as that for simple engorgement, since one runs almost imperceptibly into the other. In addition to the use of belladonna locally, I have found the greatest benefit from the application of warmth and moisture by means of a linseed poultice placed over the belladonna; and it is most important that the breast should be thoroughly supported by a sling, or, what I prefer, a broad strap of plaster affixed to the shoulders, and carried below the organ. In debilitated patients, in whom inflammation of the breast is most generally seen, any local or general depletion is uncalled for; but the administration of the tincture of aconite, in frequent and small doses (two-minims every two hours), will do much to relieve the feverish condition of the patient, and to promote a healthy moisture of the skin.

Suppuration is most common in the substance of the breast itself, though an abscess occasionally forms near the nipple, and still more rarely, at least during lactation, beneath the breast, in the connective tissue between it and the pectoral muscle. Since suppuration involves ordinarily only a portion of the gland-tissue, the secretion of milk goes on to a certain extent, and a child may even be put to a breast in which an abscess already exists. The matter never finds its way along the lactiferous tubes to the nipple, for these are blocked by inflammatory deposit at a very early period, but it tends to burrow through the breast, and to inflict very serious permanent injury upon it unless early evacuated.

The diagnosis of an abscess deep in the substance of a breast is by no means easy in all cases; and the so-called *tactus eruditus* of the surgeon has no better opportunity for its display than in its detection. The period for which the disease has lasted, and the œdematous condition of the integuments, will justify an incision even when fluctuation may be doubtful; and, fortunately, a mistake is of little consequence, since the relief of tension by the slight hæmorrhage and draining away of serum consequent upon the incision will be as great as if matter had been evacuated. It is often difficult, at least in hospital practice, to persuade a patient to purchase permanent relief from all her sufferings by submitting to a momentary infliction of pain; and I find it advantageous, in explaining the treatment to the patient or her friends, to avoid most carefully the use of the word "lancing." A woman who protests loudly against being "lanced" will permit all that is necessary under the name of a "prick" or "puncture," particularly if the surgeon is pretty rapid in his movements, and avoids making any display of instruments, basins, &c. The knife I prefer for opening tolerably superficial abscesses is the ordinary double-edged Syme's abscess-knife, which, by its sickle shape, allows a sufficient opening to be rapidly made; but if the matter is very deep (and it is sometimes missed from not going deep enough) I prefer a slender straight bistoury or finger-knife. Of course, the incision should be made in as dependent a position as possible, and always in a direction radiating from the nipple, so as to avoid dividing the lactiferous ducts.

There can be no better treatment than poulticing for a few days after matter has formed in the breast; but over-poulticing—i.e., prolonged for weeks—is strongly to be condemed, since the discharge is thereby kept up, and both the vitality of the part and the strength of the patient are weakened. Cases of abscess of the breast which have been treated domestically from the first not unfrequently come before the surgeon with half a dozen openings, from which flabby granulations protrude, pouring out a considerable quantity of thin unhealthy pus under the influence of prolonged poulticing. Here the proper treatment is to take off the poultice at once, to support the breast efficiently by strapping or bandaging, to inject the sinuses with some simple stimulating lotion, such as the red lotion (sulphate of zinc, one grain; compound tincture of lavender, one fluid drachm; spirit of rosemary, half a fluid drachm; water, one fluid ounce), and to dress each of the openings with water dressing and the above lotion; or, if the parts prove sluggish, with a lotion of nitrate of silver, two grains to the fluid ounce. It is seldom necessary to lay open sinuses extensively in the breast, though where there are two small and insufficient openings to a sinus, time may be saved by laying them into one under chloroform. At the same time, attention must be paid to the general health of the patient; hectic symptoms, if present, being checked by sponging the whole body with hot vinegar and water at night, by the administration of the mineral acids in full doses with vegetable tonics; and subsequently, the health being restored, by the administration of iron, cod-liver oil, and resort to the seaside.

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* See paper by author "On the Employment of Belladonna in Surgical Affections" in the *Practitioner*, vol. i., 1868.

The somewhat rare cases of abscess *behind* the breast are readily recognised by the way in which the whole mamma is thrust forward and made prominent. The matter, which forms rapidly in the connective tissue over the pectorals, has a tendency to gravitate, and thus fluctuation will be always most readily perceived at the lowest part. An early and dependent opening is necessary for the treatment of these cases, and in this situation I have availed myself with advantage of Mr. Hilton's suggestion to introduce a director through a small skin wound, so as to push the point up to the matter, which then finds its way along the groove. A pair of dressing forceps or scissors passed along the director, and expanded so as to open up a passage for the matter, saves all risk of hæmorrhage.

The occasional formation of an abscess in the straight tubes around the nipple has been already alluded to, and is readily treated by a timely incision radiating from the nipple. Of a similar character is the chronic dilatation of one of the tubes with milk, due to obstruction of a duct, constituting what is commonly termed a *lacteal tumour*. This is an oblong, semitranslucent swelling, which gives little inconvenience unless it becomes very tense. Occasionally a little steady pressure upon it will remove the obstruction from the mouth of the duct, and thus allow of its evacuation; but more frequently an incision is required so as to allow of the sac granulating up from the bottom.

Suppuration may occur in either the female or the male breast as the result of injury, as I have myself witnessed, and is occasionally seen in the breasts of infants of either sex, as the consequence of foolish squeezing of the part by the nurse, who has noticed the not uncommon existence of a small amount of secretion from the nipple soon after birth. A more puzzling event is the occurrence of a *chronic abscess* in the female breast, either as the consequence of injury, or more frequently in connexion with pregnancy terminating in an abortion. The formation of the abscess is very slow, and, the wall being usually thick, it is not easy to detect fluctuation. I have seen such a case mistaken for a solid tumour and removed by a very excellent surgeon. In all doubtful cases the exploring trocar should be employed to clear up the nature of the case; and, in fact, as I shall have occasion to mention later, it is always safer to make an exploratory incision into any tumour before removing it, unless the nature of it is perfectly well ascertained beforehand. The treatment of chronic abscess would consist in thorough evacuation by a free incision, with careful after-dressing to ensure perfect healing.

I will conclude this lecture by calling your attention briefly to two somewhat uncommon affections of the *skin* of the mamma, of which I happen to have seen examples myself, but which are not necessarily confined to this region.

The first is that curious disease of the sebaceous follicles of the skin known as "molluscum contagiosum," and most frequently seen in children. In the excellent plate of this disease published by the New Sydenham Society, which I now show you, it is drawn from nature on the face and particularly about the eyelids of a child, and also on the breast of the mother. I happen to have met with an almost precisely similar case; and I have no doubt myself as to the communicability of the disease from the child to the mother, and possibly *vice versâ*. The treatment of this form of molluscum is fortunately sufficiently simple: for, with the nails of the finger and thumb, the cyst with the contents of the sebaceous sac can be readily evacuated, and in a few days all trace of the growth will have subsided. The extruded pellet consists of sebaceous matter in a cyst, which is shown in a magnified form in the plate before you.

The other much rarer disease is the true keloid of Addison—morphœa or scleriasis of the skin,—of which I am glad to be able to show you an example. The patient, a healthy woman, aged thirty-one, came under my notice two years ago, complaining of great pain about the breast; and I then found the peculiar hardened patch of skin, resembling somewhat a scar, which is characteristic of the disease. Various remedies were tried to relieve the pain without much benefit; and I had the advantage of consulting the late Mr. Charles Moore upon the case, and he was inclined to regard it as a development of scirrhus. This is not the case however, for the patient is now much as she was when I first saw her. In Dr. Addison's original paper (republished by the New Sydenham Society) will be found a very similar case reported by Mr. Birkett, in which a patch formed in the axilla and breast, accompanied with a good deal of pain, and in which no treatment gave any permanent relief.

AN ABSTRACT
OF A
Course of Lectures
ON THE
INTERNAL DISEASES OF THE EYE AS SEEN WITH THE OPHTHALMOSCOPE.

Delivered at the Royal London Ophthalmic Hospital, Moorfields.

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LECTURES V. & VI.

DISEASES OF THE RETINA.

Gentlemen.—*Hyperæmia of the retina* is not unfrequently met with, and may be either arterial or venous in character. *In the arterial or active hyperœmia* the disc is abnormally red, on account of the increased injection of the arterial twigs on its surface and at its margin. The size of the arteries is somewhat increased, their smaller twigs being also more numerous and apparent; the retinal veins are likewise dilated. In estimating the degree of vascularity of the disc and retina we must, however, always remember that it varies much in persons of different complexion, appearing more marked in florid and plethoric individuals than in the pale and anæmic. Here let me warn you especially against the error of too readily arriving at the diagnosis of "hyperæmia of the retina." I have not unfrequently found, when an inexperienced observer is entirely at fault as to the cause of some impairment of sight, that, rather than admit his inability to detect anything abnormal in the fundus, he will gravely shake his head and murmur: "Great congestion of the retina; the background of the eye looks very red." Now, the disc may be flushed by hyperæmia, but the retina cannot be, for its vessels are too far apart to give it any general redness. *In passive or venous hyperœmia* the retinal veins are large, dark, and perhaps tortuous, especially the smaller secondary branches, which often assume a somewhat corkscrewy appearance; in fact, the condition of the secondary branches always furnishes the best index as to the state of the venous circulation. There is frequently spontaneous or easily-producible venous pulsation; and, after a time, a slight œdema may appear round the disc and along the larger retinal vessels.

Retinitis.—Before I describe the various appearances which characterise the special forms of retinitis, I must briefly call your attention to certain symptoms which are more or less common to all forms of inflammation of the retina, and which may very well be grouped together under the title of "idiopathic retinitis."

Idiopathic retinitis is principally distinguished, ophthalmoscopically, by the following symptoms:—1. *Hyperœmia of the optic disc and retina.* The disc is abnormally red, the veins are dark, dilated, and tortuous, whilst the arteries are but slightly altered in appearance. 2. *Opacity of the retina and disc.* In the earliest stage there is only a delicate grey veil which covers the disc and retina, and hides the epithelium and vessels of the choroid. This veil appears especially along the course of the larger vessels, and in the vicinity of the optic nerve. It is delicate and uniform, or but faintly striated, shading off towards the periphery of the fundus and in the region around the yellow spot; in the latter situation the choroid, on account of the tenuity of the retina, shines through more distinctly, thus lending a darker-red tint to this point, which becomes still more apparent by its contrast with the opaque retina, and hence may be readily mistaken for an effusion of blood. The opacity of the retina (which is due to a serous effusion) gradually becomes more marked and of a greyer tint; the disc is somewhat swollen and œdematous, and its outline indistinct, on account of the choroidal and sclerotic margins being hidden by the serous infiltration. The latter also veils the retinal vessels more or less, and causes them to describe well-marked curves. When the inflammation affects the *parenchyma* of the retina, the ophthalmoscopic appearances are, however, much more marked, for then the optic disc is very swollen, opaque, and hyperæmic, the swelling and opacity being due to serous infiltration, proliferation of the connective tissue, or inflammatory exudations. The retina, moreover, not only shows the greyish cloudiness due to serous effusion, but is occupied by patches of exudation of varying size and appearance.* They may appear as small white dots strewn about singly, or in little clusters, or as large and well-marked patches. They are greyish-white, or cream-colored, and glisten brightly if they contain much fat. These exudations may be situated in the external or internal layers of the retina, and their position with regard to the retinal vessels will afford us the best indication as to their exact situation. For if the patches occupy the external layers of the retina, the vessels pass distinctly over them without being veiled or hidden by them; whereas if the exudations are situated in the internal layers, they are somewhat striated, and the vessels are interrupted in their course, dip here and there into the patches, and are perhaps covered by them. The choroid in the vicinity of the exudations may show signs of inflammatory changes, which may become very apparent when the retina subsequently regains its transparency, the case having been, in fact, one of choroido-retinitis. 3. *Hœmorrhagic effusions* into the retina and optic disc are also generally observed, and vary likewise much in size, number, and situation. If they occupy the external layers of the retina, they are sharply defined, uniform, round, and lie distinctly beneath the retinal vessels; whereas, if they are situated in the inner layers, they are irregular in shape, and striated (on account of the blood-corpuscles following the course of the optic nerve-fibres, between which they are effused), and they more or less cover the vessels, the continuity of the latter being perhaps here and there interrupted, and the gap occupied by the hæmorrhage. If the blood is effused along the inner surface of the retina, it gives rise to large, uniform, smooth, red patches, which completely cover the vessels. 4. *The coats of the bloodvessels* often undergo sclerosis and fatty degeneration, and then appear as white bands, with a central red streak of blood running through them.

When the retinitis has lasted for some time, the opacities of the retina and disc, as well as the blood extravasations, may be absorbed, and the bloodvessels regain a more normal appearance. But if the nerve elements of the retina have suffered severely, much impairment of sight remains, or atrophy of the optic nerve and retina may close the scene.

The sight is always more or less impaired in retinitis, more especially if the region of the yellow spot or the nerve elements of the retina are much involved; objects often also appear abnormally small (micropsia), or bent and crooked (metamorphopsia). The visual field is generally somewhat affected, both as regards its extent and its continuity, for there are often gaps in it corresponding in situation to the more extensive hæmorrhagic effusions or exudations of lymph. Such gaps in the field appear to the patient as dark patches (scotomata). The external appearance of the eye generally remains quite or nearly normal; the pupil, is however, somewhat dilated and sluggish, and there may be slight photophobia and ciliary injection.

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* The application of the term "exudation" to these white patches is not always correct, for they are often due to proliferation of the connective tissue or nerve elements of the retina. I have, however, deemed it advisable to retain the name "exudation," as it is generally accepted, and as it is often impossible to distinguish with the ophthalmoscope between these different pathological products.

The *prognosis* must be guarded, and depends chiefly upon the extent to which the nerve elements of the retina have been implicated, for changes in them are not retrogressive. With regard to the *causes* of retinitis, it may in rare instances occur idiopathically, being produced by prolonged exposure to great glare or excessive use of the eyes; but, as a rule, it is due to some constitutional cause —e. g., syphilis, Bright's disease, diabetes,—or is consequent upon some other affection of the eye, such as choroiditis.

The *treatment* must vary with the cause. Complete rest of the eyes should be enforced, and they must be guarded against the effect of bright light by dark blue glasses. Free action of the bowels, the skin, and the kidneys must be maintained. The best local application in all forms of retinitis is the artificial leech; with which an ounce to an ounce and a half of blood should be taken from the temple every five or six days. If the patient is feeble and anæmic, dry cupping is to be substituted. If the exudations are considerable, I have often found much benefit from getting the patient rapidly under the influence of mercury by inunction, tonics being perhaps simultaneously administered. When the retinitis is dependent upon a constitutional cause, such as Bright's disease or syphilis, the treatment must, of course, have special reference to this. In Bright's disease, preparations of steel, or of steel and quinine, will prove most efficacious; in syphilis, mercurial inunction, and consequently the use of iodide of potassium, should be prescribed. In these forms the artificial leech is also of great benefit.

Albuminuric (*nephritic*) *retinitis* presents some special symptoms which are so characteristic that the presence of Bright's disease may be diagnosed by means of the ophthalmoscope alone. Besides the usual symptoms of retinitis—e. g., swelling and opacity of the disc and retina, dilatation of the veins, and extravasations of blood,—there are at a later stage two special peculiarities, viz., a more or less extensive opaque mound round the disc, and numerous small, white, stellate spots in the region of the macula lutea. The mound is formed in the following manner:—Small white dots or large patches appear in different parts of the retina at some little distance from the disc. They gradually increase in size, coalesce, and finally give rise to this mound, which extends somewhat more to the nasal side; its peripheral margin being irregular, and broken up into small white round dots, which fringe the larger figure. The opacity extends also somewhat further along the course of the vessels. The mound does not reach up to the disc, but is always separated from the latter by a broad greyish zone of serous infiltration. In the region of the yellow spot is noticed a collection of small, white, glistening stellate dots, which look as if they had been splashed in with a brush, the centre of the yellow spot appearing very red. Subsequently these stellate spots may become merged in the larger exudations, and lose their characteristic appearance. The blood extravasations are generally numerous and large, and are particularly conspicuous on and around the white mound. Albuminuric retinitis does not, however, always present such characteristic appearances; for the symptoms above enumerated may either be less prominent, or some of them altogether absent. Thus the disc and adjoining retina may appear almost normal, the vessels be but little altered, the hæmorrhages but few, and here and there may be seen only some small white patches, which assume a streaky appearance at the yellow spot. Nephritic retinitis may become complicated with inflammatory changes in the choroid and vitreous, and with detachment of the retina. Atrophy of the optic nerve and retina may finally ensue.

In *syphilitic retinitis* the ophthalmoscopic symptoms are often but slightly marked. A delicate grey film veils the disc and the surrounding retina, not extending regularly in all directions, but frequently chiefly along the course of the vessels, and into certain portions of the retina, gradually passing into the healthy tissue. This film is best seen with a moderate degree of illumination, and is often so delicate as to appear only as an exaggeration of the physiological reflex. In the vicinity of the disc it is frequently faintly striated. The vessels are generally not very much altered in appearance, and the hæmorrhages are, as a rule, either almost entirely absent or but small and few in number. Small white punctated opacities may occur in the region of the yellow spot, and resemble somewhat those met with in Bright's disease, but they are not so bright and glistening as the latter, and undergo very rapid changes, disappearing and reappearing in the course of a few days, the sight undergoing corresponding fluctuations. Occasionally large white striated opacities are noticed, which may cause emptiness of the vessels by direct pressure. Von Graefe has called attention to a special form of syphilitic retinitis—viz., the *central recurrent retinitis*, which may recur twenty, thirty, or even eighty times, and is chiefly recognised by a bluish-green opacity in the yellow spot, corresponding to which the patient notices a dark central spot in the field of vision. In the opacity small white dots are sometimes noticed; but the disc and its vicinity are quite free from opacity.

Leucœmic retinitis was first described by Liebreich, and is especially characterised by the peculiar pale-orange tint of the fundus, the retinal vessels being likewise pale and of a faint rose color. The disc is pale, and its outline indistinct, on account of the serous effusion, the retina in the vicinity presenting striated opacities. The blood effusions are numerous, but also of a light rosy tint. In the yellow spot are seen irregular pale patches or prominent white spots fringed with a red areola. It is a fact of great interest with regard to Cohnheim's recent researches, that Leber[*] has found with the microscope that these white patches are due to an agglomeration of white blood-corpuscles, which have exuded through the blood-vessels, the red areola being caused by red blood-corpuscles.

Hæmorrhagic retinitis is hardly a special form, the chief peculiarity being a marked tendency to numerous and large blood effusions, accompanied by serous effusion into the retina, but generally not by any exudations. The disease shows a great tendency to recur, and if it does so frequently, atrophy of the optic nerve and retina may ensue. Glaucomatous symptoms sometimes supervene upon hæmorrhagic retinitis, and, as we shall see hereafter, this constitutes a most dangerous form of glaucoma.

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[*] Klinische Monatsblatter fur Augenheilkund, 1869, p. 305.

Retinitis pigmentosa is distinguished (as its name suggests) by the presence of pigment in the retina. If this has occurred to any considerable extent the greater portion of the retina is covered by large black masses, which are chiefly arranged along the course of the bloodvessels. They consist of small circular spots, some being larger, and having narrow prolongations, which cause them to resemble bone-corpuscles. There are also narrow black lines running along the sides of the vessels, and covering them, so that these may here and there appear changed into black lines. The pigment deposits are always greatest at the periphery, where they first appear; thence they gradually extend towards the posterior pole of the eye, which they encircle as with a broad dark girdle. The yellow spot may at a later period also become invaded. The impairment of sight and the great contraction of the field do not depend (as is sometimes erroneously supposed) upon the deposits of pigment, but upon the thickening of the coats of the blood-vessels, which narrows their calibres so much that an insufficient amount of blood is supplied to the retina, thus causing torpor of the latter, which becomes especially conspicuous when the illumination is dull. At a later stage of the disease (at the age of thirty-five or forty) atrophy of the optic nerve and retina almost always occurs. Choroidal changes are also often observed. These may be confined to thinning and atrophy of the epithelium, so that the choroidal vessels become more distinct; or the stroma of the choroid may become atrophied, and the sclerotic shine through, giving rise to brilliant white patches. Posterior polar cataract is likewise a frequent complication. The most characteristic symptoms of which the patients complain are night-blindness and very great contraction of the field of vision; but subsequently complete blindness almost always ensues. The disease is often met with in several members of the same family. It occurs most frequently in the offspring of marriages of consanguinity, and is sometimes combined with deaf-mutism (Liebreich). The instances of retinitis pigmentosa which you saw in two brothers this evening were cases in point, for their parents were cousins. Great contraction of the retinal arteries, and small white dots and stripes in the periphery of the choroid, are sometimes observed in children before the appearance of pigment in the retina; but they already suffer from hemeralopia and contraction of the visual field. The white choroidal dots and stripes are probably due to excrescences of the elastic lamina.*

Detachment of the retina from the choroid is easily recognised in the erect image if it be considerable and extend far into the vitreous: for, if the eye be moved in a certain direction, we notice that we do not gain a red reflex from all portions of the fundus, but that at a certain part it becomes of a bluish-grey tint. On closer inspection in the erect or reversed image, we observe a grey, perhaps floating, opacity, which is thrown into undulating folds with every movement of the eye, and is traversed by dark, crooked, and distorted vessels, riding on the folds of the detached portion, between which they dip and may even be completely hidden. On carefully tracing the limit of the detachment, we generally find that beyond the point where it distinctly commences there is a faint-grey opacity of the retina, the vessels being here abnormally dark, and showing a tendency to curve. This opacity is due to serous infiltration of the retina. When the detachment is but slight, and the subretinal fluid transparent, considerable dexterity is often required in detecting it. The best way of doing so is to trace the course of each individual vessel from the disc towards the periphery; for when the vessels reach the detached portion (which is generally somewhat opaque, and perhaps thrown into a little fold), they become darker and slightly bent. They then, also, lie closer to the observer, and he has to alter his accomodation somewhat in order to see them distinctly; and there will, moreover, be a parallax. Small partial detachments appear in the form of faint-grey streaks, over which, perhaps, a vessel curls. When the detachment is complete, it assumes a funnel shape, the apex being at the optic disc, the base at the ora serrata. Detachments of the retina are generally caused by a serous effusion from the choroid; but they may also be due to hæmorrhagic effusion, to a tumour, or to a cysticercus, &c. The principal subjective symptoms are: a grey undulating cloud in the field of vision, contraction of the latter, crooked and distorted appearance of linear objects (metamorphopsia); the central vision remaining, perhaps, almost normal, but this will become deteriorated in proportion as the detachment approaches the yellow spot. The treatment must chiefly consist in great rest of the eyes, dry cupping at the nape of the neck, or the guarded application of the artificial leech. Iodide of potassium may be given, and, in some cases, puncture of the detached retina is indicated.

In *embolism of the central artery of the retina* the loss of sight is generally extremely sudden and complete, the patient perhaps not being able to distinguish the strongest light. Ophthalmoscopically, we find that the disc is white, and the vessels greatly diminished in size, especially the arteries, which, if they are bloodless, look like thin white threads. The veins may, for a part of their course, be empty, or filled with a column of blood or blood-coagula; they are often more dilated at the periphery than near the disc, and a peculiar fluctuation is frequently noticed in the column of blood. Some days after the attack the region of the yellow spot becomes veiled by a greyish-blue film, due to serous infiltration, and is sometimes mottled by small grey dots. At the foramen centrale there is a marked cherry-colored spot, which is not due to a hæmorrhagic effusion, but simply to the choroid shining through. If the embolus is not in the trunk of the artery, but in a branch of it, the swelling and œdema of the retina, the obliteration or narrowing of the vessels, and the loss of sight, are confined to the corresponding segment of the retina. In the diagnosis of such cases it is of importance to ascertain whether pulsation in the retinal arteries can be produced by pressure on the globe; for if there is no pulsation the circulation is arrested.

In cases of *tumour of the retina* (glioma retinæ), we at first observe with the ophthalmoscope numerous white glistening patches in the retina, which lie partly behind the vessels, and partly cover them. They soon coalesce and increase in size, gradually forming little nodules, which in their turn join and give rise to a cauliflower growth, which, augmenting in size, protrudes into the vitreous as a large yellowish-white nodulated mass, on whose expanse are noticed hæmorrhagic effusions and bloodvessels. Partial detachment of the retina generally occurs at an early stage, becoming at a later period complete. The tension is either normal or more or less increased, and this fact assists in the diagnosis between this and the simple form of detachment of the retina, in which the tension is usually diminished. As the glistening yellowish mass can be seen with the naked eye, the disease was formerly termed "amaurotic cat's eye." At a later stage the eyeball becomes filled with the morbid growth, and, finally, the latter perforates the globe, generally at the cornea, and then sprouts forth and increases very rapidly in size.

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* Vide Leber's article, "On Retinitis Pigmentosa," Archiv fur Ophthalmologie, xv. 3.

Atrophy of the retina occurs in the final stages of many of the intraocular inflammations, glaucoma, or cerebral amaurosis. The retina then becomes extremely attenuated and changed into thin connective tissue, hence the details of the fundus can be seen with unusual distinctness, and the retina does not yield the slightest reflex. The retinal vessels are excessively thin, looking like narrow lines or streaks, and finally disappearing altogether. The optic nerve is atrophied. Occasionally deposits of pigment or cholesterine are noticed in the retina.

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Lettsomian Lectures

ON

EXCISIONAL SURGERY OF THE JOINTS FOR DISEASE.

Delivered before the Medical Society of London.

By Frederick James Gant, F.R.C.S.,

Surgery to the Royal Free Hospital.

LECTURE I.

THE KNEE-JOINT.

Mr. President and Fellows,—When the Council of this Society proposed to confer on me the honor of appointing me Lettsomian Lecturer for the present year, I naturally felt some hesitation in accepting a position which had been held so worthily by many distinguished predecessors. Nor was my difficulty lessened by the reflection that, in order to sustain the distinction of that position, it would be incumbent on me to come before the Society with some original contribution to surgery which would imply considerable clinical labor and practical experience. The Council, will, perhaps, remember that, under these circumstances, I did hesitate before complying with their unanticipated overture. Fortunately for me, there was a subject to which I had long devoted special attention—that which may be aptly designated "Excisional Surgery of the Joints"; and it seemed to me that I might venture to bring together, so far as time permitted in these lectures, a systematic view of this department of surgery.

Excisional surgery is best introduced by defining its full signification. Excision—or resection, as it is sometimes less properly called—signifies the removal of any part of the body by a cutting-out operation of extirpation. This kind of operation relates chiefly to the joints and bones, although it may be practised also for the removal of tumours, as adventitious growths produced in connection with the natural organism. The object of excision is, therefore, to preserve or to restore the organism, as far as possible, in or to its healthy anatomical integrity. With regard to the osseous system, comprising the joints and bones, excision may be practised either for disease or for injury of these parts.

In approaching this subject we may just take a retrospective glance at its history and time-honored associations. Hippocrates, in whose writings 2400 years ago so many other surgical aspects of the present age are reflected, distinctly notices the resection of bones at the joints,—as of the leg, the ankle, the forearm, the wrist. Then, again, we find Celsus and Paulus Ægineta both as explicitly directing the excision of the ends of bone,—the one in compound dislocations, the other in compound fractures with protrusion. But the latter writer refers also to the practice of excision for disease of the joints or of the bones: "When," says he, "the extremity of a bone near a joint is diseased it is to be sawn off; and often, if the whole of a bone, such as the ulna, radius, tibia, or the like, be diseased, it is to be taken out entire." Thus, then, excisional surgery had its origin in that fertile period of the world's history when arts and literature flourished. Subsequently, in the course of those dark and dreary middle ages, when the human mind lay dormant, as in death, it is scarcely possible to trace a vestige of that which was destined to become a leading feature of modern surgery. Not until towards the close of the last century were the operations of joint excision fully recognised. In 1781, Park, of the Liverpool Hospital, excised the knee-joint, and with a successful result. This was followed by a second successful operation on the knee, in 1789. Contemporaneously, in France, the Moreaus, senior and junior, practised excision of the joint, between the years 1786 and 1789; and then of the elbow-joint, the one surgeon in 1794, the other in 1797. The efforts of Park and Moreau failed to make any, the slightest, impression on the profession or the public. In September, 1782, Park wrote to Percival Pott, of St Bartholomew's Hospital, "a few sheets, in which," said he, "I hope to show that in some of the affections of the knee and elbow in which amputation has hitherto been deemed indispensably necessary, surgery has yet another resource, which, as far as my reading and experience enable me to judge, has not yet been attempted by any other practitioner—I mean, *the total extirpation of the articulation.*" He emphasised his suggestion by underscoring it, as an indication for italics. This announcement, however, seemed in no way to have moved the original mind of the famous metropolitan surgeon. On the continent, the memoirs offered by the Moreaus to the French Academy provoked violent opposition, and were rejected with disdain by the surgical *savans* of France. Thus it was that towards the close of their labors the pioneers of excisional surgery experienced the mortification of knowing that they had attracted no followers—no successors.

It is unnecessary to pursue this general historical sketch further; those who revived the operation of excision, and sufficient contributors, will be amply noticed in connexion with the consideration of the several joints. But what I would here particularly advert to is, the wide difference between establishing an operation as a recognised procedure in surgery, and the discovery, subsequently, of the conditions, local and constitional, under which, as guiding principles, the operation should be practised. They can only be discovered by an elaborate analysis of accumulated cases, carefully observed and recorded. The experimental trials of Park and Moreau confessedly on their part left the operations of joint-excision simply as recognised procedures in surgery. Subsequently, the revivalists and those who have practised these operations have, I submit, left undone that which I propose. It is therefore to the *conditions* of the joints in disease or injury which may be appropriate for excision, as the most prominent feature in these lectures, that I would now invite your attention.

This inquiry is so large as well as difficult, that, in addressing you on the subject, I shall have to restrict myself to the conditions of *disease*, and especially to those which comprise the *inflammatory* affections of the joints, whether commencing in the synovial membrane (as synovitis), or in the ends of bone (as caries), and extending, in either condition, to ulceration of the articular cartilages. *Cancerous* disease of the articular end of a bone is comparatively rare, and more rarely justifies excision of the joint. Amputation entirely above the seat of disease is the only resource.

By an analysis of twenty carefully recorded typical cases, published in the Medico-Chirurgical Transactions of last year, I endeavored to establish three propositions, representing the conditions of disease appropriate for excision of the joints in general; and certain supplementary propositions relating to particular joints. The experience of seven additional cases enables me to confirm and enlarge these conclusions, and, so far as they may stand the test of further experience, they may be taken as principles or rules for the guidance of the surgeon in his selection of this operation. I may here state that this series of cases is *consecutive*—i.e., it comprises, *all* the cases in which I have had recourse to the operation of joint-excision. No adequate basis for generalisation can be afforded by any limited series of cases; but my own have the advantage of preconsidered observation and analysis specially with a view to the purpose proposed; and I have supported my conclusion by large masses of evidence carefully gathered from recorded sources of trustworthy results.

1. The Knee-joint.—*The conditions of disease appropriate for excision.*—The knee-joint considered in relation to the operation of excision, illustrates the three general rules as to the conditions proper for operation:—Destruction of the articular cartilages, and perhaps dislocation, without the supervention of anchylosis, but whilst the constitutional condition has not advanced to hectic and emaciation; anchylosis of a nature inappropriate to the functional use of the limb—namely, here, ligamentous union; or such anchylosis, coupled with malposition of the limb by retraction and dislocation.

But there are also certain *peculiar* conditions as pertaining to the knee-joint which more especially determine the propriety of excision.

(1) Compared with other joints, a certain *limit to the extent* of disease is essential to success. The disease must not extend in either the femur or the tibia beyond the limits requisite for the formation of sufficiently wide-based osseous surfaces to permanently support the weight of the body, and for the preservation of a sufficient length of limb to be really useful. The *patella* should always be removed, as being diseased in some cases, and always useless as a remnant after excision of the joint.

(2) In *young* subjects—under the age of about ten or twelve years—it is of importance that the disease should not extend beyond the limits necessary for the preservation of the epithyses or of the epiphysical cartilages; the integrity of the latter, at least, being requisite for the subsequent growth of the bone, and thence of the limb, in length. The observations which led to this rule were originally made by Professor Humphry, of Cambridge.

Operation.—Excision of the knee-joint for disease, originally introduced by Filkin, of Northwick, in 1762, was followed by Park, of Liverpool, as an independent originator, in 1781; but the operation, performed by Syme in 1829, and on the Continent by Heyfelder in 1849, was revived by Sir William Fergusson in 1850, and followed immediately by Jones, of Jersey, and Mackenzie, of Edinburgh.

The patient lying recumbent, and under the influence of chloroform, the limb, already bent by retraction of the leg consequent on the joint disease, is firmly held by an assistant so as to present the knee vertically; his one hand grasping the thigh, the other hand the leg, the foot of which rests on the table. The knee-joint is most conveniently laid open for excision by a curved horse-shoe-shaped incision (U), extending from the side of one condyle downwards across the head of the tibia, just below its articular surface, to the same point on the side of the opposite condyle. Thus both ends of bone are exposed. A second sweep of the knife, dividing the ligamentum patellæ, will fairly enter the joint from side to side, when a touch or two over the remains of the crucial and lateral ligaments completely lays it open, the joint being at the same time forcibly flexed by the assistant. In young subjects, with fibrous anchylosis, care must be taken to sever any such union with the knife, lest by forcible flexion either epiphysis become attached—an accident, in regard to the tibial epiphysis, which happened in one of my own cases, and which my friend Mr. Bloxam, of St. Bartholomew's Hospital, has seen occur in two more. The joint having been laid open, I raise the flap of integument with my left hand, hooking my fingers under the patella, and, taking particular care not to detach the integument from the femur, I draw the knife across just above the articular end of bone, so as to define it for excision. The saw, a small, broad-bladed one, is applied in this line, at a right angle to the bone—observing to make allowance for the projecting direction of the articular end—upwards and forwards, in the flexed position of the limb, as held by the assistant. Unless this direction be observed, the section of bone will be oblique to the shaft. A few strokes with the saw brings its edge out just behind the condyles of the femur, and corresponding to the posterior margin of the articular surface of the tibia; when a slight jerk outwards of the blade detaches the section, exposing a broad, flat, osseous surface on the end of the femur. The popliteal vessels and nerves are quite out of the way in making this section, the saw inclining forwards almost parallel with them, and the ligamentum posticum intervening. To make the tibial section, I apply the saw similarly in front of the head of the tibia, on the margin of the line of incision about half an inch below the articular surface, no detachment of the integument being necessary for this purpose, and carry the blade, at a right angle to the bone, or parallel to the articular surface, so as to bring the edge out about half an inch below it posteriorly; when a jerk upwards with the blade will detach the articular end without touching the ligamentum posticum, or endangering the popliteal vessels and nerves, and a broad, flat, osseous surface is exposed. If the tibial section were made from *behind* the articular surface, and the femoral section also, as some surgeons practise the operation, the popliteal parts would indeed be quite out of the way; but the ends of bone are thus apt to be detached from their vascular connexions, and the femoral section, as made from the front, is perfectly free from any risk, while the tibial section can be safely made with the little precaution already observed in using the saw towards the posterior ligament. But the liability of wounding the popliteal artery, either with the knife or the saw, should not be overlooked, that accident having happened in at least two instances, one of which was, however, a re-excision wherein the adjacent parts were somewhat affected by adhesion; yet, still to inculcate caution, this accident happened in the hands of a most skilful and practised operator. In the event of such a mishap, amputation must be performed forthwith. Excision of the joint may be performed in a *block*, instead of by separate section, when the articular ends of bone are firmly anchylosed; the piece of bone cut out having a V shape, owing to the projection of the knee forward from constant retraction of the leg.

The parallel surfaces of bone, thus made in either way, lie in parallel apposition when the limb is extended. This is the most important operative consideration with relation to the formation of firm osseous union. An oblique direction of either surface is most unfavorable to this result; too much space intervening at one part for the formation of an intermediate plate of bone, and the remainder of the surfaces being tightly locked, the limb cannot be flatly extended; painful startings of the limb ensue from attrition of the surfaces in contact, and no intermediate plate of bone can be produced. Thus the union would be in part imperfect or ligamentous, and in part incomplete or wanting. A second section must be made from either end of bone, if necessary, to reach a healthy surface, or gouging may be requisite; but the extent of bone excised should be limited by the considerations already explained, and the surfaces must always be finished off *parallel*. The patella is removed, avoiding the making of a button-hole in the integument. Any thickened synovial membrane, often slate-colored, may be dissected out. Hæmorrhage is easily arrested by torsion of the articular arteries, or any other small bleeding vessels. In scrofulous caries little difficulty is experienced. In chronic synovitis the bleeding is sometimes profuse, owing to the vascular and thickened state of the synovial membrane, and the bone remaining healthy and florid. But torsion, sponging with cold water, and exposure, will still prove sufficient to stop the hæmorrhage. I then extend the limb, and having seen that the ends of bone lie in even apposition—not absolute contact—a flat piece of sponge is held on the wound while the splints are applied. The extended limb is laid on a padded back-splint covered with oil-silk under the knee, this splint reaching from the fold of the nates to just above the heel. I *now* prefer to have the foot-piece part of the lateral splint, as thus the heel escapes pressure and a consequent tendency to sloughing. McIntyre's splint I have long disused; it not only causes some pressure on the heel, and precludes access to that part for dressing, if requisite, but the trough in which the limb lies induces more wasting of the muscles than would otherwise ensue, and thence also a loosening of the splint at an earlier period than when it may be safely removed for cleansing, and reapplied. Broad strips of adhesive plaster are drawn round the limb and splint, immediately above and below the knee, another broad strip high up on the thigh, and narrow strips around the ankle and instep. A roller bandage is applied from the foot upwards, and another high up from the thigh downwards, leaving the knee uncovered. An outside interrupted splint, well padded, and covered with oil-silk above and below the interruption at the knee, and provided with a vertical foot-piece, is now applied; this splint reaching from above the great trochanter downwards, and the end of the thigh-piece well supporting the very *end* of the femur externally, at the seat of excision, while the perpendicular foot-piece maintains the leg in position, and the upper end of the tibia in steady apposition with the femoral end of bone. Elevation of the whole limb five or six inches will be found to further aid the latter purpose. A short padded femoral splint may also be placed in front of the thigh, terminating just above the femoral end of the bone; but if the external thigh-piece be not *too wide*, this anterior splint will scarcely be necessary, and I rarely use it. The external splint is secured by a roller bandage from the foot to below the knee, and by another bandage from above the knee, up the thigh, and over the end of the splint, with perhaps two or three turns around the pelvis. The use of the external splint is to counteract the tendency to displacement of the lower end of the femur, in three directions, after excision of the knee-joint—projecting outwards by abduction, rotation outwards, and projection forwards.

The first two displacements give the characteristic bow-legged and twisted appearance which, in a greater or less degree, is so common in the course of union after knee-joint excision, and both of which proceed apparently from muscular action; while the tendency to projection forwards seems to be produced by a constant sinking of the buttock in bed, thus tilting the lower end of the femur forwards. The side-splint specially counteracts all three displacements; thigh-piece corresponding in length and breadth with the femur, any tendency outwards is prevented; while eversion and forward projection are restrained by the bandage, and the latter displacement by the support of a firm mattress, or at least a pillow under the buttock. I have had occasion to lengthen this side-splint up to the axilla, so as to counteract a tendency to an angular twist of the trunk to the opposite side in bed, whereby the lower end of the thigh is abducted or everted, with an angular projection outwards at the knee. But there is no tendency to abutment inwards, and no occasion for the application of an internal splint, as practised by some surgeons. Such a retentive appliance after knee-joint excision is the precaution of a blind timidity, not that which a due knowledge of the possible displacements would suggest.

Lastly, the sponge is removed from the excision wound, any clot wiped out, the ends of bone finally seen to be in apposition, and then the flap integument closed down evenly by points of suture. Strips of lint soaked in carbolic acid lotion (1 part to 40) are laid over the line of incision, and a broad piece of oil-silk over the whole knee; over all a roller bandage is applied to further exclude the air, and maintain some compression to prevent oozing and secondary hæmorrhage. The patient is removed to a bed close at hand, the limb elevated on pillows to a height of about six inches, and a cradle placed over the excision.

After-treatment should be conducted in accordance with the general principles common to all joint-excisions. But I would urge the importance, with reference to the after-treatment of knee-joint excision in particular, of one rule: not to reapply the splits before the end of a month or six weeks, unless absolutely necessary to correct some important displacement.

Results of Excision of the Knee-joint in relation to Natural Anchylosis.—The true comparison of joint-excision is with the natural cure by anchylosis. Such comparison would involve several essential particulars: the appropriate nature of the anchylosis, and with a proper position of the limb for its functional use; the duration of the period of recovery; the permanency of that result, and its frequency, as resulting from excision or from the natural cure; and their liability to life, or comparative mortality. Statistical results bearing on these questions, and which shall be sufficiently accurate and comprehensive for comparison, are wanting with regard to the knee-joint, no less than in respect to other joints.

Six valuable cases of knee-joint anchylosis, resulting from disease, without suppuration, have been recorded by Mr. T. Bryant.* They do not, however, entirely meet the questions which I have suggested, and the limited number of cases do not supply sufficient data for comparison.

The period of natural cure would seem to be very protracted, extending often to five years or more, and even to ten years. Cases of this duration, respectively—not, it must be confessed, of a very inviting and encouraging character,—are recorded by Mr. T. Bryant and by Mr. Hilton as having occurred in their practice for the mechanical cure of knee-joint disease. But even a more important consideration is this, that such protracted recovery is attended with a proportionate reduction of constitutional vigor. Hence, with reference to the question of mortality, operative interference may be too late, or intercurrent disease, consequent on delay, may carry off the patient. In either case death ensues from the prolonged attempt to bring about a natural anchylosis. The patient is killed in the curing.

But this inquiry must be pursued. Its importance cannot be over-estimated, since, even in the advanced state of suppuration, free incisions into the joint may prove successful in terminating the disease, with a movable joint, or at least with anchylosis—a mode of treatment in aid of the natural cure for which surgery is indebted to the President of this Society, Mr. Gay.

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* Medical Times and Gazette, 1870.

Clinical Lecture

ON

DIGITAL EXAMINATION OF THE UTERUS.

By Graily Hewitt, M.D.,

Professor of Midwifery in University College, and Obstetric Physician to University College Hospital.

Gentlemen,—I propose to speak to-day on a subject introductory to the study of the diseases of women—namely, the methods of examination which assist us in obtaining information with respect to those diseases. The difficulties in practice are not so much difficulties in regard to treatment as to diagnosis. Moreover, mistakes in practice are more frequently due to errors in diagnosis than to any other cause. The knowledge of the physical condition of the generative organs was formerly a matter very much of conjecture. Physical examination was only carried to a slight extent. True, ages past, some old physicians, such as Aetius, as was not long since pointed out in one of the medical journals, had been acquainted to a certain extent with the physical alterations of the uterus, which must have been derived from a careful examination by means of the finger. It is a fact, however, that until comparatively recent times the investigation of the physical condition of the generative organs was carried to a very slight extent.

Within the past thirty years much attention has, however, been given to this subject. For some time the speculum was the instrument almost exclusively used in obtaining information as to the physical condition of the uterus. This method of investigation has been followed, in too many cases, to the exclusion of all other methods of examination. One cannot, therefore, be surprised at finding that in many instances very remarkable physical alterations of the uterus remained quite undetected, since the examination was confined to a visual inspection of the os uteri. It is, however, from digital examination of the uterus that we are able to learn most regarding the condition of the uterus. This is a point I am most anxious to impress upon you; and I now desire to explain to you how this examination is to be made, and what are the results to be expected from it. I was exceedingly pleased to find in a work recently published by M. Courty, of Montpellier, that the extreme importance of the digital examination of the uterus is so fully recognised. Unquestionably the speculum, and above and beyond that the sound, give completeness and exactness to the investigation in particular cases; but still the digital method stands first, and you will do well to recognise this as the primary one.

By means of the finger educated to the proper degree, you can become acquainted with the size and position of the uterus, the state of the vaginal canal, with the condition of the organs lying in the immediate vicinity of the uterus, the ovaries; with the presence of a tumour lying in the pelvis in the same situation, and affecting the uterus. You can make this examination by the vagina, or you can make it by the rectum. Another method consists in a sort of double examination, one finger being inserted into the vagina, and one or two fingers being placed over the symphysis pubis. When the patient is in a favorable position, you can get thus most important information. So also a double examination from the rectum and over the pubes can be made by placing one finger in the rectum and two over the pubes. You endeavor to bring the two together, and, if the patient is not very stout or fat, you can do this in such a perfect manner as to make it absolutely certain, for instance, that there is no uterus in a case in which that organ is congenitally absent. Thus also you can determine the shape of the top of the uterus. In fact, there seems to be hardly any limit to the information that can be gained from it under tolerably favorable circumstances. Much, however, depends on the position in which the patient is placed, and by far the best position for such double examination is lying on the back, not on the side, with the knees drawn up, and the observer standing at the patient's right hand. The first or second finger of the right hand is then passed in as far as possible; then two fingers of the left hand are placed over the pubes, and pushed inwards and downwards into the pelvis. In this way the two fingers can be brought into close proximity, the abdominal walls being in this position completely relaxed.

I will next describe the digital examination of the vagina only. A proper position is very essential; and the only good one is for the patient to lie on the couch on her left side, with the hips close to the edge, and the knees drawn well up. It is quite impossible to make a satisfactory examination with the patient lying in the middle of a soft bed.

The examination is usually conducted by means of the forefinger of the right hand. To arrive at the aperture of the vagina, place the left hand upon the great trochanter of the patient, and immediately under that you will find the vulva. Remember the distinction between the vulva and the vagina. The former is nearly an inch in depth; and, after passing on for that distance, the finger comes to the position of the hymen, the beginning of the vagina proper. If no impediment is created by the existence of the hymen, the finger of course passes inwards as far as the vagina extends; and the normal length of the vagina, including the part belonging to the vulva, is represented pretty exactly by the length of the forefinger, which has to pass in almost as far as it can be inserted before its tip reaches the cul-de-sac behind the os uteri.

Thus the first thing that is determined by this examination is the length of the vagina. That is determined at once. Next comes the condition of the uterus; and the facts relating to this must be set down under several heads.

The first point is the condition of the os uteri. Normally, in the woman who has not borne children, the finger finds merely a small aperature. In women who have had children the aperture is generally larger, it may even be so large as to admit one or two fingers.

Next determine the length and shape of the cervix, and recollect that it really occupies nearly one-half of the length of the uterus. The part which can be felt by the finger in the vagina is, however, only a small portion of the cervix—the "vaginal part," as it is called; the greater part of the neck is above that. You have to determine the length of this vaginal portion. In women who have not borne children this is not more than half or three-quarters of an inch. It may be much longer, or it may be shorter, and the latter point becomes very important with reference to the diagnosis of pregnancy. The cervix is not really shortened in that condition, but it is drawn up out of the vagina so as to appear shorter.

Next the density of the vaginal part of the cervix has to be investigated. There is a considerable softness about it normally, and yet it is pretty firm. In pregnancy it becomes very soft, and in the latter part of pregnancy it becomes as soft as velvet, so that towards the end you have a difficulty in making out that there is an os uteri at all.

The symmetry of the os uteri should next engage your attention. Is it symmetrical in form? Is it symmetrical as regards density? Nodulation or cicatrisation is an important sign. In cancer, for instance, there is a complete loss of symmetry both as regards form and density; it is irregular in outline, nodulated often, harder than natural, and the increased density is always greater on one side than on the other.

If you are a beginner you will find that this part of the examination will occupy you at least several minutes. The more practice you have the more rapidly will you be able to determine these several points.

After thus investigating the condition of the os, you may next proceed to examine the neighborhood of the uterus. This may conveniently be regarded under four divisions: (1) that in front of the uterus; (2) that behind it; and (3, 4) those on each side of it.

Commencing with the examination of the anterior region, the finger is pushed forwards and upwards in front of the neck. It displaces the vaginal wall before it, and can thus be made to rise to a considerable distance in the pelvis between the uterus and the bladder. You will readily understand that, if the uterus is bent forwards unduly, the finger will thus come upon it and touch it. So, also, if there is a tumour in front of the uterus, the finger will come upon it. Thus this examination will inform you of the presence or absence of a tumour there, or of anteflexion or anteversion of the uterus. Sometimes anteflexion will escape notice thus. The finger, being pushed forcibly up in front of the uterus, causes the organ, as a whole, to turn on its axis backwards, and you may fail to find the tumour because it retreats before the finger. The longer the disease has existed the more likely is this to occur, since after lapse of time the uterus gets rigid and fixed in its abnormal shape. This examination in front of the uterus will enable you to eliminate pregnancy. If a patient has arrived at the third month of pregnancy you will certainly be able to detect the enlargement of the uterus; while if you can detect no tumour in front of the cervix you may be pretty sure that pregnancy does not exist. Pelvic tumours of various kinds are liable to be met with there. An ovarian tumour may be felt there. A tumour growing out of the uterus itself may be found there. Peri-uterine hæmatocele, consisting of an effusion of blood, may be situated in front of the uterus, and cause a hard and rather firm tumour in this position. In pelvic abscess and cellulitis there is an induration in the pelvis which may also be situated in this locality.

The neighborhood behind the uterus is equally important with that in front of it; and its examination ought never to be neglected. When the uterus is in a proper position, the finger, passed up behind the cervix, is unable to explore the uterus higher than a point just above the junction of the vaginal wall and the cervix; and nothing can be felt beyond that point. But we often do find a tumour in that situation. Its most common cause is retroflexion of the uterus; and then the finger comes upon the body of the uterus behind its neck. In all cases of retroflexion, except those in which the amount is very slight indeed, you will find a tumour there. Certainly, in ninety-nine cases out of a hundred you will be able to detect it. I have frequently known marked retroflexion to be missed solely from the practitioner neglecting to examine the part behind the neck, and confining the investigation to the condition of the os itself. Finding a tumour there, you have next to make out its shape; and the next important thing to ascertain is whether the tumour is symmetrical and in the middle line. The retroflexed fundus is usually, as might be expected, symmetrical, and generally nearly in the middle line. But the tumour may be due to other conditions: one of the ovaries may be displaced, and may lie near the middle line behind the uterus. It is not common; but the ovary may be found there, enlarged and painful. You would separate it from the uterus by making out that it was not continuous with the cervix. The point of the finger is made to travel slowly from one point to another; and, if it be an ovary, you find a break between the two. A fibroid tumour growing from the back of the uterus is not very rarely met with in this same position, which may be of any size, and may simulate very closely retroflexion of the uterus. The diagnosis between the two is made with the greatest possible ease by means of the sound. Sometimes a fibroid tumour is associated with retroflexion, and is, indeed, its cause, pulling the uterus back. Another tumour often met with there, is that caused by pelvic cellulitis. This is usually found to one side; it is hard, dense, and resistant in the chronic stage, and the parts are evidently all matted together. It is sometimes difficult to distinguish this tumour from one that consists of a fibroid tumour alone. Peri-uterine hæmatocele is more common in that situation than in any other.

By examining the lateral aspects of the uterus you become acquainted with the condition of matters in the broad ligaments—the space which intervenes between the two surfaces of the peritoneum which are reflected over the Fallopian tubes, and enclose a dense mass of cellular tissue and an immense quantity of vessels, veins, arteries, and lymphatics. It is in this situation that inflammation so frequently occurs. If you suspected that a patient had pelvic cellulitis, you would, as a rule, expect to find the swelling on one side or other of the uterus. Tumours do not so often grow from the sides of the uterus as from the front and back, or at all events are not so obvious on a vaginal examination. Effusions of blood may also occur at the sides of the uterus. Sometimes the uterus is turned over to one side, giving rise to lateral version; and this is very commonly combined with anteversion. In retroversion it is common to find the uterus a little to one side of the middle line, but not so much as in anteversion.

Having thus examined the os uteri and the region round it on all sides, by means of the double examination I have before referred to, you may extend this, and render some things certain which before were uncertain.

Original Papers.

FURTHER OBSERVATIONS

ON THE

SKIM-MILK TREATMENT OF DIABETES MELLITUS.

By Arthur Scott Donkin, M.D.,

Lecturer on Medical Jurisprudence and Toxicology to the University of Durham, late Physician to the Sunderland Infirmary, etc.

More than a year has now elapsed since I first introduced this method of treatment of a very intractable and fatal disease to the profession, through the medium of The Lancet.[*] I then published cases showing the remarkable efficacy of the treatment, and the rapidity with which it can cure the disease. Since the date of my papers the only contribution which has appeared corroborating my observations is the lecture on the subject to the students at the Edinburgh Royal Infirmary by Dr. George Balfour subsequently published by him in the *Edinburgh Medical Journal.*[†] This accomplished physician has recorded his experience of the value of the treatment; unfortunately, however, the patient who formed the subject of his observations remained only a few days under his care in the infirmary, but during this brief period improved to a degree which he terms "very remarkable."

The time has now arrived when it is incumbent on me to show what my subsequent experience with the treatment has been, and to bring forward well-authenticated cases as corroborative testimony in favor of what I have already stated. It is with this object in view, and with the earnest wish that others may be induced to put it to the test of direct experiment, without bias, that I now venture to publish the following cases.

The first case is that of a patient of Mr. M. Francis, surgeon to the Sunderland Police Force, by whom I was called to attend in consultation for the purpose of giving the skim-milk treatment a fair trial.

The second case occurred in my own practice, the patient consulting me at my own house, where, as is stated in the report, he was carefully examined and pronounced cured by my neighbor, Dr. Charles Natrass, of Sunderland, who has evinced much interest in the treatment. This case is the more valuable from the fact that the patient, prior to having been put under the skim-milk treatment, was for a period of four months carefully kept under Rollo's dietetic treatment by an accomplished and experienced surgeon in Newcastle, and pronounced by him incurable at the end of this period. We have thus an opportunity of comparing the relative value of the two kinds of treatment.

Not the least extraordinary fact connected with both cases is that *both were cured within fourteen days after beginning the treatment.* And I must not forget to add that at the time I am now writing one of them has continued free from the disease nearly seven months, and the other nearly six months.

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[*] January Number, 1870.

[†] Feb. 1870.

CASE 1. *Diabetes mellitus; removal of the sugar from the urine in fourteen days; complete recovery.*—Mr. J. G——, aged fifty-eight, a highly respectable merchant, of large, robust, muscular build, and of regular and temperate habits. He has devoted himself very successfully to business pursuits, with all the anxiety attendant thereon.

For two years prior to May, 1870, this patient had grown much stouter and shown a decided tendency to corpulency, and, to use his own expression, "had been very bilious." He suffered much during this period from loss of energy and fatigue on exertion, always feeling dull, heavy, and languid, sleepless at night and drowsy in the daytime. This general indisposition he attributed to his habits having become much more sedentary and his application to business much closer. He took no stimulants whatever during the daytime, but in the evening, at dinner and after it, he took daily a pint of bitter ale and one or two glasses of whiskey, but never more than this quantity.

This condition of general debility and suffering just described continued until the beginning of May, 1870, when the patient's health completely broke down, and his feeling of debility increased so greatly that he could with extreme difficulty walk in the morning after breakfast between his own residence and his place of business, a distance of about half a mile.

This condition continued until the 14th of June (about six weeks), when I was called in consultation with Mr. M. Francis, surgeon to the Sunderland Police Force, when he found the state of the patient to be as follows:—He was unable to attend to business, and could not walk more than a quarter of a mile without taking a rest. He suffered much from a dull heavy pain across the forehead, with a painful dragging sensation in the face, or as if something was dragging down his cheeks. There was great dimness of vision and loss of energy, no sleep at night (although he slept occasionally towards morning), coldness and numbness of the limbs, and loss of sensation on the anterior surface of the thighs. There was not excessive thirst nor inordinate appetite; the skin was somewhat dry and not perspiring; the gums were spongy, and the teeth loose. There was nothing abnormal in the state of the pulse, and no organic disease could be detected.

Such were the general symptoms; and a careful examination of the urine revealed the nature of the disease. The daily quantity of urine varied from eight to ten pints; and its specific gravity was from 1035 to 1040, and it was loaded with sugar. The case was, therefore, unquestionably one of diabetes mellitus.

On the following day (the 15th of June) the skim-milk treatment was begun; and, on account of the large muscular frame of the patient and his sharp appetite, from eight to ten pints were taken daily, and at the ordinary temperature. The cream was taken off carefully after it stood a sufficient length of time, and according to directions. *All other food was scrupulously refrained from;* and no medicine whatever was in this case prescribed. This treatment (an exclusive diet of skim-milk) was persevered in *without variation or intermission for a period of five weeks.*

And now let us consider with what result.

At the end of the first week of the treatment, the urine had fallen in quantity to six or seven pints daily (the quantity being always in direct ratio to that of the daily consumption of milk), and its specific gravity was reduced to 1015, the quantity of sugar having undergone a very great diminution.

At the end of the second week (June 28th), or *fourteen days after the commencement of the treatment, the sugar had completely disappeared from the urine;* not the slightest trace could be detected on the most careful examination. The specific gravity of the urine was now reduced to 1009 and 1010 daily, the quantity ranging from six to seven pints according to the quantity of milk taken daily; but whenever the quantity exceeded seven pints the specific gravity was always below 1010. From this date the sugar continued absent from the urine.

As regards the general symptoms of the disease already enumerated (most of which were referable to the nervous system), they gradually diminished, and at length completely disappeared within a fortnight, and were succeeded by a feeling of perfect health, accompanied by profound refreshing sleep at night. The lethargy, too, entirely disappeared.

One of the most remarkable changes produced in the patient's condition was the restoration of his strength; *at the end of a month he walked seven miles without once resting, and without fatigue* or subsequent injury; his diet having been all the while exclusively skim-milk as already stated.

At the commencement of the treatment the patient was flabby and inclining towards obesity; but two months afterwards his flesh was firm and compact, his features presenting a ruddy healthy hue, instead of his previously yellow, pasty look; his gums and teeth regained their firmness.

As already stated, the skim-milk treatment was continued for five weeks. At the end of this period from two to three pints of the daily allowance of milk (from eight to ten pints) were converted into curd by the use of Proctor's essence of rennet; this curd was taken at two meals, and it assisted materially in filling the stomach, and was thus very grateful to the patient. This slight change was continued two weeks; but, as it was a mere modification of the milk diet, the latter may be said to have extended over a period of seven weeks.

At the end of seven weeks, and as an *addition* to the milk and curd diet, still continued, a dinner was allowed, consisting of about three quarters of a pound of beef or mutton roasted, or steak or chop, with a moderate quantity of green vegetables (cabbage, greens, lettuce, spinach, &c.). This change of diet did not cause any return of the sugar in the urine, but contributed much to increase the strength of the patient, and was very grateful to his appetite.

Since the disappearance of the disease, on the 28th June, up to the present time (January, 1871), a period of more than six months, the patient has continued and still continues in excellent health, and sugar is still absent from the urine, which is subjected to a weekly examination. Additions have been made to his diet, but all articles containing starch and sugar have been excluded as far as practicable. At present he is taking the following diet daily: For breakfast: ½ lb. of mutton chop, a pint of milk, and about ½ pint of coffee. For lunch: ½ lb. of potted head or potted meat and a pint of milk. For dinner: about ¾ lb. of roast beef or mutton, chop or steak, fowl or turkey, with green vegetables (brussells sprouts, cabbage, &c.) After dinner, up to bedtime, tea and a liberal quantity of milk are taken. Six pints of milk are consumed daily; from this the greater portion of the cream has been separated. Under this diet the health of the patient is excellent, and he has gained considerably in healthy flesh, the obesity and flabbiness having quite disappeared. This dietary will be continued for some time longer, until it is considered safe to introduce articles of diet containing starch or sugar.

CASE 2. *Diabetes mellitus; removal of the sugar in twelve days; complete recovery.*—Mr. D. S——, a highly respectable and prosperous tradesman in Newcastle-on-Tyne, of robust, muscular build and of temperature habits, but much confined within doors by his business. His health had generally been good until January, 1870, when he began to suffer much from general indisposition, and when he placed himself under a medical practitioner, who ascertained that he was suffering from diabetes, but did not prescribe a dietetic treatment, or produce any amelioration of the condition of the patient.

On April 15th he consulted an experienced surgeon in Newcastle. At this time his weight was 11 st. 10 lb., and he passed daily from six to seven pints of urine having a specific gravity of 1040 to 1045. He suffered from dry skin and excessive thirst (not greatly increased appetite), great dimness of vision, and almost complete loss of sleep. He had a dull, heavy, aching pain over the loins, great listlessness, entire loss of energy, and experienced great fatigue on the slightest exertion.

The patient was now placed under Rollo's dietetic treatment, consisting of animal food—beef and mutton,—of which he partook about 2½ lb daily in four meals, with the addition of two or three of Camplin's bran biscuits to each meal; tea was allowed, and also a pint of claret daily, and occasionally a little brandy and cold water. Bread, sugar, and all food containing starchy matter, were strictly prohibited.

On the 19th April (four days after commencing this treatment) his weight was 11 st. 5 lb.; and on the 25th, 11 st. 10 lb.

The effect of the treatment was to diminish the daily quantity of urine to 4½ pints on an average; but its specific gravity never fell below 1038, and continued to be abundantly impregnated with sugar. The patient, however, experienced considerable relief from the general symptoms of the disease up to the 25th of July; but the disease itself showed no indication of yielding, and was pronounced incurable. At this period he became much worse, there being a great aggravation of all the symptoms of the disease up to the 3rd of August, when he first came under my observation.

When, at the date just mentioned, he consulted me, I found the patient suffering from all the symptoms already detailed, and from which he was suffering when placed under a dietetic treatment in the beginning of April. He was passing from six to seven pints of urine daily. The specific gravity on the 3rd of August was 1040.

On the 4th of August, the day following, I placed him under the skim-milk treatment. He was allowed six pints daily, from which the cream had been carefully separated, after standing eighteen or twenty-four hours in a cool place. *All other food was strictly prohibited*, and stimulants were disallowed. The subjoined table shows the effect of the treatment on the urine, which was carefully collected and measured every twenty-four hours, and the mean specific gravity ascertained. In this table I give the condition of the urine only on the days on which the patient was seen by me, and the examination made by myself.

Table showing the effect of the treatment on the quantity and specific gravity of the urine, which contained an abundance of phosphates.

1870.	Daily quantity in wine pints.	Specific gravity.
Aug. 3rd	6	1040
5th	3½	1030
8th	4½	1013
10th	4½	1013
13th	3½	1015
15th	4½	1011
18th	3½	1016
20th	4	1014
23rd	5	1010
26th	4½	1015
29th	5	1010
31st	5½	1013
Sept. 3rd	3	1019
6th	2½	1023
12th	3½	1019
19th	3	1020
23rd	2½	1026
27th	4½	1017
30th	2¾	1024
Oct. 3rd	3½	1024
10th	3¼	1023
23rd	4½	1015
29th	5½	1019
Nov. 2nd	3½	1024
10th	4	1018

The dates of the following report of the general condition of the patient correspond with those of the table above.

Aug. 3rd (the day before the treatment was begun).—The urine was loaded with sugar. There was great thirst, a dry skin, no sleep at night, loss of energy, and great fatigue on exertion.

5th (the day after the commencement of the treatment).—Not much improvement in general symptoms; but the urine was reduced 2½ pints in quantity and ten degrees in specific gravity.

8th.—The quantity of sugar in the urine very much diminished; *thirst gone;* skin moist and perspiring, especially at night. Had slept soundly on the previous night; listlessness much less, and feels as if he had got rid of a load.

10th.—Much less sugar in urine. A great improvement in every respect.

13th.—Sugar reduced to a very small quantity. Thirst quite gone since the 8th. Skin continues moist; sleeps soundly every night; vision improved; pain in the loins gone; feels much more energetic and active; takes a long walk daily without fatigue.

15th.—Only a mere trace of sugar observable in the urine. Continued improvement, especially in strength.

18th,—Sugar totally absent from the urine; still improving in strength and energy; has no desire for more food.

20th.—Sugar continues absent; "feels quite well," can walk a long distance without fatigue. The daily allowance of skim-milk increased to seven pints.

23rd.—No sugar; keeping quite well. After consulting me on the 20th he walked to Whitburn, and then to Cleadon Station (about five miles), without fatigue.

29th.—No sugar; feels quite well.

31st.—As before.

Sept. 3rd.—As before. Now allowed, in addition to seven pints of skim-milk daily, two pints of the same made into curd by essence of rennet.

6th.—No sugar; quite well. Has taken much exercise daily, and perspires freely. Bowels constipated, and relieved by castor oil.

12th.—No sugar; feeling well and strong. At this period the patient was examined, as well as his urine, by my neighbor, Dr. Charles Natrass, of Sunderland, who considered him cured of the disease. The patient, moreover, declared to Dr. Natrass and myself that, on the 6th of Sept., he had walked from my house by the sea-shore to South Shields, a distance of nearly eight miles, without fatigue, and after having lived on skim-milk solely for forty-one days. He further declared he could not have done this feat three years previously, when in health and living generously.

15th.—No sugar in the urine; weight 11 st. 10 lb.; health excellent.

The patient had now lived solely on a skim-milk diet for a period of thirty-two days, and on skim-milk and curds solely for an additional twelve days, in all forty-four days (six weeks and two days).

On Sept. 16th he was allowed, as an *addition* to the skim-milk and curd diet, half a pound of mutton chop to dinner.

Sept. 19th.—No sugar in the urine; patient continuing well; takes daily, with the chop, five pints of skim-milk in the liquid form, and from two to three made into curd. The change in the diet diminished the quantity of urine and raised its specific gravity.

23rd.—Urine free from sugar, but containing a deposit of uric acid crystals.

27th.—Patient perfectly well; has been drinking more milk; allowed the green part of cabbage, greens or lettuce to dinner, with butcher meat.

30th.—As before.

Oct. 3rd, 10th, 23rd, and 29th.—No sugar in the urine; health excellent; has been taking much out-door exercise; now allowed Van Abbatt's gluten bread to dinner, as an addition to the food last mentioned.

Nov. 2nd and 10th.—No sugar in the urine; health excellent. It was now considered unnecessary to deep a regular record of the case.

Since the above date the patient has been constantly under my observation, and a weekly examination of the urine has been made; and at the period I now write—January, 1871,—nearly seven months after the patient's recovery, the disease has not returned, and the patient is in excellent health, notwithstanding the fact that he has partaken daily of a mixed diet, though carefully regulated to exclude, as far as possible, starch and saccharine matter, and also fat, except to a small amount. The dietary on which he was placed, and on which he is now living, is as follows:—Five to seven pints of skim-milk daily (two or three pints of it converted into curd by essence of rennet); eggs (occasionally a portion of the curd and of the eggs are made into puddings); tea and coffee, with skim-milk; a meal of roast beef or mutton, chop or steak, turkey or chicken, with green vegetables, such as the green part of cabbage, greens, brussels sprouts, lettuce, spinach, &c. Tea has been taken in the evening, and supper has consisted of curds and milk. With this diet the patient is vigorous and quite contented.

(*To be concluded.*)

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ON PAIN, AND SOME OF THE REMEDIES FOR ITS RELIEF.

By William Dale, M.D. Lond.

There are several diseases which, towards their termination in death, give rise to great pain; whilst there are others which, during their course, produce pain, in a greater or less degree, whether the end be death or recovery. I propose to make some remarks on such diseases in a practical way. The former have special claims upon our sympathy and care; for, as medical men, I conceive it to be our privilege as well as our duty to afford relief from pain after all hopes or attempts to cure the disease may have been relinquished. Such a work as this was suggested to me several years ago by some remarks which I met with in Sir Thomas Watson's "Lectures on Medicine," in connexion with the word *euthanasia.*[*] I have, therefore, no novelty to present to the attention of the reader; but as I have not seen the subject dealt with large, or, indeed, more than in scattered remarks in medical writings, I judge it may neither be uninteresting nor unprofitable to bring together a few thoughts bearing upon it.

Pain is emphatically the Nemesis by which man is pursued from the cradle to the grave; and it is frequently so dreadful, so agonising, so overwhelming, and so utterly beyond endurance, that no effort and no philosophy can render it supportable. Some ancient philosophers, especially the Epicureans, looked upon "corporeal pain as the only real evil; that of inward discontent being, they held, an evil that we frame to ourselves." Hence they shrank from it always, unless by bearing it a shorter or longer time they might secure greater and more lasting happiness. And, without fear of contradiction, one may assert that pain is not better borne now than it was in ancient times, but is equally dreaded as an evil to be avoided or escaped from; indeed, I question whether it be not more feared by the sensitive and nervous than even death itself. Pain is complained of as sharp, heavy, throbbing, stabbing, splitting, boring, burning, tearing, cutting, wearing, &c.; and these names serve to show the corporeal sufferings through which men pass in the course of various diseases. One of our greatest poets speaks of it in language which suits every age:

> "Pain is perfect misery, the worst
> Of evils; and, excessive, overturns
> All patience." Milton.

Burns's anathema against this our common foe is well known:

> "My curse upon your venom'd stang,
> That shoots my tortured gums alang
> And thro' my lugs gies mony a twang
> Wi' gnawing vengeance;
> Tearing my nerves wi' bitter pang,
> Like racking engines."

This much, then, by way of introduction to the subject. I now proceed, first, to enumerate some diseases in each of the classes already mentioned, which may serve to represent the whole; secondly, to dwell briefly on these diseases *seriatim;* and, thirdly, to notice the medicines and other modes of relieving the pain by which they are attended.

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[*] Signifying easy dying, or an easy death.

In Class I. may be placed—

1. Phthisis pulmonalis. (*a*) Pneumothorax producing dyspnœa or orthopnœa. (*b*) Extent of the disease (affecting the lungs so largely as to leave but little sound lung tissue for the due performance of their functions, and producing dyspnœa or orthopnœa, as in pneumothorax).
2. Asthma. (*a*) Emphysema. (*b*) Hypertrophy and dilatation of the right side of the heart.
3. Heart disease. (*a*) Mitral insufficiency. (*b*) Angina pectoris.
4. Cancer.

In Class II. we may notice—

1. Passage of gallstones.
2. Passage of calculi.
3. Intestinal obstruction.
4. Neuralgia.
5. Tetanus.

It is not my intention to describe these diseases, because to do so would be irrevelant to the standpoint from which I wish to view them. My object is simply and clearly to point out the circumstances and accidents—if I may so speak—which, during their progress, or at or near to their close, are accompanied by pain; yet it is indispensable that I cast sufficient glance at their semeiology to render myself intelligible.

CLASS I.

1. *Phthisis pulmonalis.*—Charles Dickens has given us a well-known and much-quoted description of pulmonary consumption in "Nicholas Nickleby," speaking of it as "a dread disease which so prepares its victims, as it were, for death; which so refines it of its grosser aspect, and throws around familiar looks unearthly indications of the coming change—a dread disease in which the struggle between soul and body is so gradual, quiet, and solemn, and the result so sure, that day by day, and grain by grain, the mortal part wastes and withers away, so that the spirit grows light and sanguine with its lightening load; and, feeling immortality at hand, deems it a new term of mortal life,—a disease in which life and death are so strangely blended that death takes the glow and hue of life, and life the gaunt and grisly form of death." This is a true and beautiful description of phthisis, from a non-medical point of view, as to its general features, for in most cases *pain* is not a prominent symptom; but alas! this clever word-painting is not universally correct. Sometimes a tubercular abscess (Aitken) opens into the pleura, and the fluid thus introduced, pressing upon the lung, impedes its functions, already more or less impaired; and the accident may be attended by the admission of air also, if the abscess involve one or more bronchial tubes. At other times the disease has so far encroached upon the tissue of the lungs, and they are so full of cavities and tubercular deposit, that their functions can be but imperfectly performed. A low kind of pleuritis also may give rise to effusion either of pus or serum into the pleural cavity, with a similar result as to the patient's discomfort. Effusion of fluid, then, into the pleural cavity resulting from pleuritis, or the discharge of a tubercular abscess; pneumothorax, with or without effusion; extensive destruction of lung-tissue, united with the general debility which ensues towards the close of the disease, when "the pitcher is about to be broken at the fountain," are the chief causes of the patient's sufferings; and the shortness of breath—his great trouble—is often so urgent and so distressing that you fear every breath he draws will be his last. I say "fear" in the medical aspect of the case, for, indeed, hope would be the better term if you consulted only the patient's feelings, and not seldom his wishes also. I had a boy fourteen years old under treatment in phthisis. His sufferings were very great towards the close. He sat on a couch by the fire for nearly a week without being able to lie down, from feelings of suffocation, and died where he sat. An invalided officer in the army was also under my care, who suffered much agony in this disease for several days previous to his death. In the former case the anguish arose from the disease having encroached largely upon the substance of the lungs, and there being probably some effusion into the pleural cavity; and in the latter from pneumothorax, so far as I could ascertain, for in both cases the patients were too ill to bear much examination.

2. *Asthma* comes next in order in this class. Asthma, if severe and frequent in its attacks, produces emphysema, and not seldom also hypertrophy and dilatation of the right side of the heart, the causes in both cases being bronchial spasm, with infarction of mucous secretion; in the one case giving rise to supplementary respiration (Watson), or over-work for the healthy portions of the lungs; in the other to capillary congestion, throwing back the blood upon the heart, causing unwonted efforts of the right ventricle to overcome the obstruction, and so, in the end, hypertrophy and dilatation. Œdema of various parts of the body, but especially of the lungs themselves, adds considerably to the distress of the patient. Venous congestion, great breathlessness, heaviness, and faintness, are the chief symptoms. Indeed, as one writer observes, "his life is choked out of him, and his sufferings are inexpressibly painful to behold, until the not unwelcome insensibility ushers in dissolution." I once saw a man stand nearly three days by the side of a chair, in the utmost distress, brought about by repeated and severe attacks of asthma; and he sank at length into a state of insensibility and death where he stood. Shorter attacks of orthopnœa as death approaches are not very rare in practice; but words are quite inadequate to describe the sufferings with which such results of asthma are attended.

3. Some *diseases of the heart* stand next in order for consideration.

Vulvular insufficiency of whatever kind, with the exception, perhaps, of slight obstruction at the aortic orifice at an early period, almost always leads to considerable suffering and distress, unless, indeed, the life of the patient be suddenly cut short. The circulation being impeded behind the obstructed valve, we observe irregular distribution of blood to the brain and congestion throughout the whole of the capillary system,—as that of the lungs, liver, stomach, &c., with more or less dropsy. When these evils occur death is *in propinquo*, and the symptoms and effects are often very painful and harassing to the patient. He complains of pain, or a feeling of distress even worse than pain, in the region of the heart, faintness, vertigo, and headache; and, above all, distressing breathlessness, the least movement or change of posture making him pant, and gasp for life and breath, and dread instant suffocation. These effects, it will be observed, are similar to those produced by asthma, the congestion of the lungs being the same in both cases, but with this difference, that in the one case the mischief begins at the lungs, and in the other at the heart. Dropsical effusions are also common to both diseases.

Angina pectoris, another painful affection of the heart, next claims attention. It has been designated "neuralgia of the heart" by some, and was very well described by Heberden nearly a hundred years ago; and from his work, indeed, later descriptions have been chiefly borrowed; such is the case in Dr. Watson's Lectures, and also in Hooper's Vade-Mecum. In its first attack, this disease comes on when the patient is walking, especially when ascending a hill after taking food. It consists of a severe paroxysm of pain and constriction across the chest, threatening to destroy life, and obliging the sufferer immediately to stand still. the patient is apparently in health before this sudden and alarming *anguish*, which differs entirely from dyspnœa. The pain frequently spreads from the chest to the upper part of the left arm, and even to the elbow. After the disease has lasted a year or so, the paroxysm is not terminated immediately on standing still, but persists for some time; it is also excited by slighter efforts—as riding in a carriage or on horseback, by evacuating the bowels, or by mental emotion. This spasm or fit in the region of the heart, commencing at first in walking up any ascent, especially against the wind, and afterwards excited by slighter causes, is the chief feature of the disease. But it may seize the patient when he is still, or when standing or sitting, and especially on awaking out of his first sleep, if he has been lying on his left side. Sometimes the pain spreads not only to the arm, but to the hand also, but this rarely happens; and, more rarely still, the arm is benumbed and swollen. Towards the close the attack may last many hours, keeping the patient in great agony and alarm. At length, an unusually violent fit or sudden syncope, without previous warning, terminates a wretched existence.

4. *Cancer.*—The last disease in this class which remains to be noticed is cancer, and I shall not dwell upon it. Cancer is still among the opprobria of surgery and medicine; for, whilst there are no internal remedies which can be said to exercise any influence over the disease, it is still *sub judice* whether any operative interference is justifiable, inasmuch as it may return, either in the cicatrix, in a neighboring gland, or in an internal organ, and then run a more rapid course than before. From these facts, the subjects of this malady are very much to be pitied. They carry about with them a disease which medicine cannot reach, and for whose relief surgery can only offer the bare shadow of a hope, and not even this in all cases (as where it occurs in the uterus and rectum). Those affected by cancer suffer great pain, especially of a lancinating, neuralgic character; and sooner or later become loathsome to themselves and to all about them, if we except those angels of mercy—"few and far between"—whose affection, pity, and self-denial never fail. Since, then, this disease generally runs a fatal course, and so much needs palliatives towards its close, I have given it a place here.

CLASS II.

1. *Passage of Biliary Calculi.* 2. *Passage of Urinary Calculi.* 3. *Intestinal obstruction.*—These diseases may be noticed together, since they affect similar structures, and the sufferings attending them have a similar cause—namely, increased muscular action in the ureters, intestines, &c., in propelling their contents, when there is partial or complete obstruction to the passage of the same; often combined with great distension and more or less inflammation. In all, the pain is frequently intense and intolerable, and may last for hours or even for days. Let us choose from these diseases a typical case. Let it be obstruction of the bowels. At first the pain complained of may be slight—a mere griping or uneasiness; but soon it increases in severity, and is accompanied by distension and violent rolling movements of the intestines. Sometimes severe and agonising pain begins at once, after retching, straining, &c.; and in a few hours the patient may be in a state of collapse, with scarcely any pulse, and bathed in a cold clammy sweat. The pain—always present and severe until near the fatal close, if the obstruction continue—has paroxysms of intensity, brought on by writhing peristalsis, when the intestines, like so many snakes, may be observed twisting and rolling about within the abdominal walls. Great distension, tenesmus, and tormina, in some cases flatulent discharges within the bowels and violent vomiting, often of fæcal matters, add further to the miserable condition of the patient. Dr. Brinton, who is one of our chief authorities on this disease, and who left a posthumous work treating of it, remarks that "the amount and duration of the pain vary with the degree of that local injury which is associated with the production of the obstructed state; so that it is usually intense in intussusception, and in the impaction of gall-stones; somewhat less marked in the obstruction produced by twisting of the bowel or by bands or adhesions; scanty in the obstruction of stricture; and almost absent in the obstruction caused by the impaction of fæces in the large intestine."* Some years ago I had under my care a very protracted case of intestinal obstruction, caused by a membranous band which constricted the lower part of the ascending colon, and by adhesions which bound it down to the fascia beneath. At intervals during twenty-one months the sufferings of the patient were most severe, and he died at last from sheer exhaustion, as for several months he could not take any solid food without increase of pain and uneasiness.

4. *Neuralgia.*—I pass on to neuralgia, which is *par excellence* a painful disease, and may attack any part of the body. The worst cases I have seen have been where it has seized the nerves of the head, of the face, or of the uterus, and the sciatic nerve or its branches; giving us the varieties named tic, hemicrania, sciatica, &c. I once saw a gentleman whose face, from constant twitchings of its muscles, was distorted as if from paralysis by frequent and most terrible attacks of this disease; and within the last year I have had a very bad case of hemicrania, which resisted all remedies for many weeks. I recollect also having seen a case of neuralgia of the uterine nerves which came on every now and then, like an electric shock, and

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* Brinton on Intestinal Obstruction. 1867.

caused intense agony; but fortunately the attacks were of short duration, and the disease soon subsided.

Toothache is often neuralgic in its character and in its severe periodic attacks; but it depends on several causes; and since it might be thought somewhat ludicrous to sympathise with "tortured gums" and "twanging lugs," and since diseases of the teeth are almost, by common consent, banished from our province, it may be passed by with this brief notice—the poet's misery and anathema notwithstanding.

5. *Tetanus.*—The next disease claiming attention is tetanus; its chief symptoms being spasm and rigidity of several voluntary muscles, giving rise to intense and continous agony. In mild cases there are stiffness and rigidity of the neck, and lock-jaw or trismus; but in the more severe bending of the body backwards, or forwards, or to either side, according to the situation of the muscles which are affected: hence the terms opisthotonos, emphosthotonos, and pleurosthotonos. The following graphic description is true to the life, and cannot well be improved;—"Frightful suffering caused by tetanic spasm: face pale; brows contracted; skin covering forehead corrugated; eyes fixed and prominent; nostrils dilated; corners of the mouth drawn back; teeth exposed, and features fixed in a grin (risus sardonicus); respiration performed with difficulty and anguish; severe pain at the sternum; great thirst, but agony increased by attempts at deglutition; pulse feeble and frequent; body covered with perspiration; no sleep; and the intellect remaining clear and unaffected. Death usually occurs between the third and fifth days, partly from suffocation, partly from exhaustion."* This is no exaggerated account of the disease. Indeed, it is not to be wondered at that the eyes start out from the head, that the nostrils are dilated, that the body is bathed in sweat, or that the face wears the sardonic grin; for I have seen a powerful horse bathed in sweat, trembling in every limb, and exhibiting other signs of torture, when under the influence of this disease. I recollect a case of tetanus occuring in the practice of the Leeds Dispensary when I was one of the medical officers of that institution, which was occasioned by a somewhat singular blow. A man ran into a room of the house where he lived to interfere between a husband and wife, who were quarrelling; just as he entered the door the woman threw a stool at her husband, but it struck her would-be friend on the cheek-bone, and tetanus followed the injury, from which, however, the patient made a favorable recovery.

Now, what agents do we possess for the relief of this "grivous scourge of humanity"—*pain?* It is a pleasing reflection that there are within our reach several medicines or panacea upon which we can place more or less dependence in contending with this great evil. Various sedatives and hypnotics have been known and employed for this purpose—I had almost said for all time,—and I may say at least, for many ages; whilst two preparations may be claimed as discoveries by the present generation, and bid fair to rival or throw all the rest into the shade.

The principal old medicines are—

1. *Sedatives*—namely, aconite (monkshood), tobacco, lobelia (Indian tobacco), Indian hemp, and foxglove.

2. *Narcotics*: Hemlock, henbane, belladonna (deadly nightshade), stramonium (thorn apple), and opium (*a*) in union with hemlock, henbane, and belladonna, (*b*) hypodermic injections of morphia, &c.

The new medicines referred to above are—chloroform and hydrate of chloral.

Addenda.—Counter-irritants, hot baths, fomentations, galvanism, &c.

I purpose dwelling briefly upon each of these medicines, pointing out their characteristic properties, in so far as they are serviceable for the relief of pain, and more especially in the diseases just passed in review.

I take the *Sedatives* first, in the order in which they have been placed.

Aconite is a general sedative, internally administered, and also a valuable external anæsthetic, tending to extinguish pain when applied to the surface of the body. A sensation of cold, tingling, and at length complete numbness, are its most sensible effects. The alkaloid, Aconitina or Aconitia, is a very active poison, 1–800 gr. sufficing to kill a mouse, 1–100 gr. a small bird, and 1–15 gr. or 1–10 gr. a cat; and it is calculated that 1–10 gr. will kill a man, so that its internal use requires great caution. The liniment and ointment of aconitia have been used with good effect in neuralgia.

Tobacco, Lobelia, and Indian Hemp.—These medicines may be noticed together, as their properties are similar, or at least their effects upon the human body differ in degree only. Tobacco is powerfully sedative, and then hypnotic. Lobelia has the same properties, but is milder in its action. It is generally placed among narcotics, but its sedative action is much more evident (Headland). The etherial tincture has been extolled in asthma, but is not to be depended upon. Tobacco smoked from a pipe is certainly a valuable remedy in asthma, as it will often prevent an attack, or cut it short after it has already commenced. It is worthy of a more extensive trial in tetanus, in obstruction of the bowels, and the passage of gall-stones and urinary calculi. Its pleasantly soothing effects on the nervous system in worry and care let the smoker tell! Indian hemp has been highly extolled in tetanus, but, its action being uncertain, it has lost repute. The tincture, in doses of ten to fifteen drops, has been recommended by Dr. A. T. Thompson as a sedative to relieve the cough in phthisis, but in my hands it has not succeeded. Dr. Broster, in THE LANCET for April, 1871, recommends it, combined with glycerine in phthisis; and though many other remedies appear to have been employed at the same time, yet a reputed cure is attributed to its use.

(To be continued)

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THE

PHYSICAL UNITIES OF THE HUMAN BODY;

DYNAMICAL, PHYSIOLOGICAL, PATHOLOGICAL, AND THERAPEUTICAL.

By Z. C. M'ELROY, M.D.

IF the human body were presented to a competent physicist for study, familiar with the accumulated facts of its anatomy, physiology, pathology, therapeutics, and dynamics, unembarrassed by any previous theories, conjectures, or speculations concerning it, he would not consume much time in unveiling most of its hitherto impenetrable mysteries.

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* Tanner.

As the initial step, he would probably determine its ultimate chemical composition. This, chemistry has demonstrated to consist of a definite number of elementary bodies common to and widely distributed through nature, and controlled, in all that concerns the growth, repair, and decay of the human body, by the earth forces, except in, as yet, one unexplained feature, to be noticed hereafter.

But little observation would satisfy him of the intimate relationship existing between it and all organic life on the globe, whether quadruped or biped, fish or fowl, worm or insect, in both material and force. Nor would he be long in determining that all animal life was but a higher type of the vegetable, seeing that, directly (as in the herbivora) or indirectly (as in the carnivora, and those subsisting on parts of both, the omnivora), they were all ultimately dependent on the vegetable kingdom for the material from which to construct their tissues; and, further, that there is in certain vegetable products material common to them all; and that, at last, the only real difference between them lies in their *forms*. For in the scale of animal existences, from the lowest to the highest, each added function has behind it a special form of structure.

Nor would he fail to observe the constant stream of material, solid, fluid, and gaseous, organic and inorganic, going from without into the interior of the body, as well as the return current of material, in very different chemical states from the ingoing, at the lungs and skin, and at stated intervals, the contents of reservoirs of sewage—the bladder and lower bowel; from not only the human body, but from each and all animal existences, the quantity being the chemical equivalents of the dynamic, or mechanical, chemical, thermal, sensory, emotional, and intellectual results in a given time.

Nor would he dwell long on the determination of the problem whether organic instrumentalities performed their function at the expense of their substance, as the candle, or only furnished conditions for chemical changes in other matter, as the lamp; and his conclusions could hardly fail to be that they were like the candle, performing their functions at the expense of their substance. No candle is designed to be chemically changed by combustion at once, evolving all its light, heat, and other chemical products, as in the chemical changes occurring between the materials of gunpowder in the act of explosion, but for all the light and heat evolved so much of its substance has been chemically changed into carbonic acid and aqueous vapor.

Entering on the duty of grouping the separate organs and tissues, no greater difficulties would be presented than those he had already overcome. It would be plain to him that provision must exist for the transformation of the food eaten into the forms and substance of the tissues and organs, and that from the means to these ends little or no sewerage would be necessary outside of the alimentary tract; and, consequently, all so-called organs or viscera without conduits to the exterior must of necessity act only in the interest of repair. And, further, that as each organic instrumentality performed its function at the expense of its substance, a general system of sewerage must exist to convey to the exterior waste or effete educts and material, much of which cannot be worked over again in the system, though some, as the alkalies, undoubtedly are, and perhaps others. This is found in the system of so-called absorbents.

These things determined, as they all have been, and that beyond all cavil or doubt, further scrutiny would reveal adequate means in existence for each end attained, and that nothing occurred or took place by so-called chance or accident, but all in obedience to inflexible and unchangeable law.

From this survey, and its results, the induction would necessarily follow that the two leading processes of the human body, and all animal bodies, were repair and waste—hystogenesis and hystolysis—i. e., constructive and destructive metamorphosis. And that, so long as these processes proceeded normally, and molecular forms normally reproduced, the result would be health, or ease of body. And that, when disarranged, or molecular forms lost, the opposite condition, or disease, or want of ease, must necessarily result. And from these premises the further induction would unavoidably result, that the physical and physiological unities of the human body are, and in like manner for all animal life: first, material—i.e., certain elements in definite proportions; second, form—i.e., that these elements must be worked into definite molecular forms; third, motion—i.e., chemical changes, whose unit is motion, must occur in the molecular forms of structure as fundamental conditions for the performance of a function.

Function is then seen to be the expression, or, so to speak, the language of the molecular forms of structure; and depends on form, and motion in the molecular form of the structure itself.

And these are the ideal unities into which merge all the accumulated facts of anatomy, physiology, pathology, therapeutics,[*] and dynamics; and they give rise to mental conceptions which correctly represent them to the mind of each student of the phenomena of organic life, physiological, pathological, therapeutic, and dynamic, which the accumulated facts themselves as certainly fail to do, disconnected from any ideal unities into which they can all be merged.

It is then apparent that there are not now, and never have been, and never are likely to be, any separate and specifically distinct pathological states or conditions in a human body; and, therefore, that the long catalogue of what are now taught, and believed to be, separate and distinct so-called diseases must be materially abridged, if indeed the wet sponge may not be necessary to erase them entirely. For as they now stand they certainly give rise to ideals or mental conceptions which do not represent the facts of life to any mind.

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[*] Dr. Wilson Fox's report of a case of acute rheumatism (THE LANCET, October, 1870, p. 531) is, as he supposes, a very interesting one, and for which he deserves the thanks of the scientific world. It teaches this lesson, that efforts to control excessive motion, as evidenced by the temperature in rheumatism, or any other pathological state, by external applications to limit chemical changes, or motion, on which temperature is dependent, unaccompanied by elimination of effete educts, must most likely always fail, no matter by whom or where practised. Elimination and the control of motion was attempted, and to some extent successfully, by directly diminishing the volume of the blood stream, though involuntary discharges of very offensive educts from the bowels occurred, and persisted, in the face of some efforts to restrain, to the end of the patient's life. And these were the means, most probably, by which the life of the patient was prolonged under such unfavorable circumstances. The excessive velocity of the molecular changes, evolving the temperature, had most likely changed the molecular forms of the structure of the brain, as evidenced by the furious delirium. With loss of form, normal function ceased, and in her case for ever. The case was probably hopeless from the 3rd of June; but her only chance of life lay in retarding motion, with at the same time active elimination of the results of tissue decay, and with agencies or measures that would not interfere with the molecular forms of structure. In veratrum viride is happily combined the means of fulfilling these ends, and under such circumstances as this patient presented at midnight of the 3rd of June, a drachm dose or more of the tincture or fluid extract would have been proper: for, as it only retards motion, with active elimination, and never changes forms in any dose, very large doses are safe when indicated. A report of a case of acute rheumatism in which it was thus used will appear in *The Lancet and Observer*, Cincinnati, for November, 1870, by the writer.

A necessary condition of specifically different pathological states, is human bodies specifically different in materials, forms, and forces, which as certainly have no existence.

A physiological human body is made up of certain definite materials, with definite molecular forms, and a definite velocity of motion, or chemical changes in the molecular forms of structures and viscera. A human body in a pathological state can only consist of abnormal velocity of molecular changes, or changed or changing forms, or combinations of two or of all these unities.

As function is the expression or language of structure, it necessarily follows that every possible pathological state is mergeable into the ideal unities of lost form, or abnormal molecular motion in the forms of structure, one or the other, or both. And into one or both of these ideal unities merge every known past, present, or possible future pathological condition.

And further, the causes of all so-called separate diseases—organic, inorganic, gaseous, fluid or solid, or naked modes of force—can do nothing more or less, or different, than to retard, accelerate, or arrest motion, or change molecular forms in a human body.

These facts and inductions make it further apparent that all present classifications of therapeutic, remedial, or hygienic agencies or measures, and the mental conceptions to which they give rise, must also be materially modified, if not wholly abandoned, and others substituted, based on these ideal unities of organic life, to the end that the conceptions to which they give rise may correctly represent the facts to the mind. For all that any therapeutic, remedial, or hygienic measure or agency ever has done, or ever can do, while the laws now governing the universe are in force, are—first, to promote or retard motion, or chemical changes, in the molecular forms of structure of the tissues or viscera; or, secondly, to change the molecular forms of structure of the tissues or viscera.

These are the naked scientific facts and inductions of modern science, or rather warranted by modern science, in reference to the human body, as well as all animal life; and they would speedily be recognised and accepted by the scientific and philosophic worlds but for the hypothetical existence of a peculiar force termed vital, manifested nowhere in the universe except in living beings. What is called vitality, spirit, or life, is a resultant, and not a cause, of the transformations of the matter composing a human body. Nothing is or can be known of soul, spirit, or life, except through the forms and motion in the molecular forms of structure of the human body.

The existence of spirit is self-evident, but no shadow of it is in existence going to show that it in anywise controls the physical organisation of the human body. This is clearly traceable to the ordinary physical forces in all that concerns its growth, repair, and decay. The sole fact, not as yet accounted for by science, in any organised body, and of course the human body, is molecular forms or types, as well as physical contour. But that they are due to peculiar modes of the physical forces, not as yet identified, and separate from them, is well nigh certain; for the constant forms assumed by inorganic matter in passing from the fluid to the solid states are probably due to a common or uniform form-force, as the chemical transformations are due to a uniform formless or working force.

It is due to medical science that this advanced ground be speedily occupied. Biology, as a science, has now no existence: while pathology and therapeutics are simply empiricisms.

Among the cultivated outside of the profession, these truths are, to a greater or less extent, realised and recognised, and hence, with them, the profession has but an equivocal status; while the disagreements of its practitioners are a standing reproach. A recognition of these, or any other ideals, into which all accumulated facts can be merged, will at once establish scientific order—a standard by which to judge all empirical experiences, and differences between practitioners of the several departments of the healing art will disappear because they will be impossible.

On a physical basis, physiology, pathology, therapeutics, and organic dynamics may speedily attain the certainty of mechanical engineering. The culture of the age demands it, and sooner or later the world will possess it. Why defer it to the future?

Zanesville, Ohio, October 20th, 1870.

CASE OF STENOSIS OF THE PULMONARY ARTERY, FOLLOWED BY TUBERCULAR PHTHISIS.

By D. Dyce Brown, M.A., M.D.

Medical Officer to the Aberdeen Dispensary.

Miss ——, aged twenty-five, became a patient of mine on the 2nd of December, 1870. Her previous history is as follows:—Both her parents died of phthisis. When about two years old, her friends had discovered that her heart had something unusual about it, and that her face and fingers got blue on the least exercise. This blueness increased; and as she grew in years, though there was always more or less of it visible on the cheeks, lips, and fingers, yet, on any exertion or exercise, the cheeks, lips, and fingers became perfectly livid, and the breathing was short and difficult. She had, however, been in good health, generally, till about two years ago, when a cough came on, which was thought to mean nothing, and was not attended to. After this her health never was good. The cough increased, till, latterly, it had become very distressing; she lost flesh in a marked degree, had profuse perspirations, and became so weak that she had to take to her bed. When at school, she had once or twice coughed up some blood, and once or twice also had vomited matter of a coffee-ground appearance.

Present condition.—She is confined to bed except occasionally rising for a short time. She complains of being excessively weak, and is much emaciated. This is not so visible in the face as in other parts of the body. Her present appearance, as compared with that shown in photographs taken in health, evidence a great loss of flesh. The face is of a bluish color, best seen in the cheeks, lips, and fingers. The fingers are very much clubbed. Pulse about 120; temperature 101° in the evening, rather less in the morning; respiration 32 in the minute. Perspires very profusely when she falls asleep, and after fits of coughing. Cough very severe, coming on in long paroxysms, which keep her from lying down with any comfort, and end generally by producing vomiting; very little expectoration, and that of a clear, viscid character. After a fit of coughing the face and hands are perfectly livid, and the conjunctivæ are injected of a dark color. She has very marked aphonia; has no appetite, and what food she does take is very frequently rejected by vomiting caused by the cough; tongue covered with a thick yellowish fur; constant thirst; bowels tolerably regular. Cannot sleep at nights, partly from the cough and partly from pure sleeplessness. Complains of little or no pain in the chest, except after severe coughing; but finds palpitation very distressing. The catamenia have not appeared for six months.

On examining the chest, a very loud systolic bruit is audible over the whole of the region of the heart, and up to the left clavicle. It is also distinctly heard over the right front of the chest, and between the shoulders on the left side. It is nearly equally loud over the whole region of the heart, if anything louder over the right half of it. No distinct evidence of hypertrophy on percussion.

The physical signs of lung disease are not well marked. Neither side of the chest moves so well as should be. On a deep inspiration the right rises rather less than the left. There is no very marked flattening of either side absolutely, or as compared with the other. On percussion the right front is slightly duller than the left, but neither gives out anything like a decidedly flat sound. On auscultation over the right front, the respiratory sounds are much masked by large mucous râle; the expiration is prolonged, but no tubular breathing is audible. Vocal resonance can hardly be estimated owing to the aphonia. Over the left front, with the exception of mucous râles, little can be detected, owing to the excessive loudness of the systolic bruit. In the supra-scapular regions there is nothing more marked. Posteriorly, the right back is duller all over than the left; the breathing is feebler over the right than over the left side; and on taking a deep breath the inspiration is somewhat bronchial on the right side. Little or no mucous râles audible over either back. Although the physical signs of phthisis were thus so little marked, as is often the case in miliary tubercle, yet, by taking into account the history of the case, the great debility, the emaciation, the profuse perspirations, the cough with clear viscid sputa, the high temperature and rapid pulse, the aphonia, the loss of appetite, and the amenorrhœa, I had little difficulty in diagnosing tuberculosis of the right lung, and probably also of the left.

Under treatment, the symptoms ameliorated greatly. The cough soon ceased to come on in paroxysms and to produce vomiting. It was, in fact, reduced to a minimum; so that, except occasionally as the result of a chill following the perspirations, the patient hardly complained at all of the cough. Sleep returned, and she would have whole nights with almost no cough. She began also to sleep much through the day, and used to complain of inability to keep awake, although she never had an opiate from first to last. The palpitation also ceased entirely. The tongue cleaned; the appetite returned, and remained tolerably good until her death. The perspirations also were modified. But the pulse remained constantly quick, never being below 96 in the morning; the temperature also remained always high; and the aphonia persisted, with occasional temporary improvement. Nothing else requires specially to be mentioned during the four months she was under my care, except a slight pneumonic attack on the right side, a slight attack of pleuritic pain on the left, both of which passed off in a few days, and an attack of diarrhœa, which ceased after a day's treatment.

At the beginning of April of this year she felt so far well as to be out of bed, for the most part of the day, on a sofa in her bed-room; and on the 7th she was allowed for the first time to go to the dining-room, which was next to her bed-room. She said she had not felt so well for a long time; but in the evening of this day, while sitting quietly in the room, she coughed up, without any feeling of warnning, pain or uneasiness, a considerable quantity of blood. For the next three days there was more or less blood expectorated among the sputa, which became more purulent than it had been before. There was also a considerable increase of the fever. On the 11th she seemed better in every way, had taken her food well through the day, and on laying herself down to rest for the night remarked to her maid that she thought she would have a good night, when suddenly a large quantity of blood came up without effort, and in about three minutes she was dead.

Sectio cadaveris, thirty-six hours after death.—Dr. Alex. Ogston was kind enough to be present, and conducted the examination. The chest was the only part examined. There was nothing unnatural about the pericardium. The heart was slightly enlarged, was soft in texture, and felt flabby. The walls of the left ventricle were thinner than natural, while those of the right ventricle were hypertrophied. All the cavities were slightly dilated, and contained fluid blood, but no clots. The mitral and tricuspid valves were slightly thickened, but otherwise healthy. The aortic and pulmonary valves were healthy. The foramen ovale was closed, but the septum between the auricles at this point was thin. In the right ventricle, at the portion known as the conus arteriosus, and just where the orifice of the pulmonary artery should have been, there was a narrow contracted orifice just large enough to admit the little finger, with a hard and distinctly cretified rim all round. This contracted ring involved all round, but especially at the right side, a considerable thickness of the muscular wall. On slitting this open, the valve proper of the pulmonary artery was found nearly half an inch further on than the cretified and contracted orifice before mentioned. The valve was perfectly healthy. About half an inch from this contracted orifice, to its right, and nearly on the same level, was a perfectly distinct triangular opening, with its apex upwards, and large enough to admit the point of the little finger. This opening went directly through to the left ventricle, emerging immediately below the aortic valve on its ventricular side, the apex of the triangular opening fitting into the division between two of the semilunar valves. It was, in fact, a deficiency at this point in the ventricular septum. In the left ventricle, about half an inch below the aortic valve, was a thickened reduplication of the lining membrane, with a firm edge, forming a distinctly marked ring, projecting from the wall of the ventricle. The pleuræ on both sides were very firmly adherent in every portion, and were studded with miliary tubercles. The right lung was literally filled with miliary tubercles, only two or three small spots of cheesy matter being seen. At the very summit were two small cavities. The base of this lung showed hypostatic congestion. The left lung had miliary tubercles scattered through it, but not to the same extent as in the right lung. At the very summit of this lung (left) was a cavity the size of a Tangiers orange, which was filled with grumous blood, and from which evidently the fatal hæmorrhage had proceeded. All these cavities in both lungs were lined with a tough leathery membrane.

Remarks.—This case is interesting from its rarity. Dr. Hermann Lebert, of Breslau, states in a lecture on the subject of Stenosis of the Pulmonary Artery, published in the *Medical Times and Gazette* for Jan. 1st, 1870, that since the commencement of the eighteenth century only 150 cases have been recorded. He further states that "Professor Dittricht was the first to show that pulmonary stenosis may also be located in the right conus arteriosus; and I have discovered in the records of medical literature five such cases, with minute anatomical descriptions." The case, therefore, now recorded forms a sixth case, as the pulmonary valves themselves were perfectly healthy, while the contraction was nearly half an inch on the ventricular side of the valve proper. In Lebert's interesting lecture he gives a summary of the doctrines held regarding this disease, and deduced from the cases recorded. He states—1. That congenital pulmonary stenosis, when the contraction exists at the orifice proper of the pulmonary artery, is the result of intra-uterine endocarditis; while in the five hitherto recorded cases, the stenosis located in the conus arteriosus was the result of intra-uterine myocarditis. 2. That congenital "pulmonary stenosis involves, besides, a patent condition of the septum of the ventricles, of the foramen ovale, and even of the ductus Botalli, since the great obstruction in the pulmonary artery necessitates other routes for the blood." 3. "Finally, another conclusion warranted by all cases of the disease is of interest, that the endocarditis of the pulmonary valves, or the myocarditis of the conus, must be established before the end of the third month of intra-uterine life of the embryo, because after that time there no longer exists, normally, any communication between the two ventricles." 4. That patients affected with this disease, should they arrive at puberty, fall victims to tuberculosis.

In my case there was no patency of the foramen ovale, nor of the ductus Botalli, but simply a deficiency of the ventricular septum large enough to admit the point of the little finger. Lebert's belief in myocarditis would seem to have support in this case, as the muscular walls were involved in the contracted ring to a marked degree, especially at one side; while his statement that tuberculosis invariably comes on if the patients live long enough is corroborated fully.

Of course, it is clear that the lividity of the face and extremities is well accounted for by the constant mingling of venous blood with arterial through the ventricular opening, as well as by the obstruction to the flow of venous blood through the pulmonary artery. We have also a double cause for the loud systolic bruit heard nearly equally over the whole region of the heart.

Union-place, Aberdeen, May, 1871.

CLINICAL ESSAYS.

By T. Pridgin Teale, M.A., F.R.C.S.,

Surgeon to the General Infirmary at Leeds.

No. III.

ON THE RELIEF OF PAIN AND MUSCULAR DISABILITY BY ACUPUNCTURE.

In the present essay it is my wish to record some facts concerning a method of treatment which, though boasting of great antiquity, and capable at times of doing good service, seems in a great measure to have dropped out of use, or at any rate to be at the present day but little employed or even known in many parts of the kingdom. It has, however, been for years a favorite traditional practice at the Leeds Infirmary.

I do not profess that acupuncture succeeds in one-half, or even in one-third, of the cases in which we use it; neither can I offer more than a conjectural explanation of its mode of action, and a general idea of the cases in which it is likely to succeed. When it does succeed, the relief it gives is almost instantaneous, generally permanent, and often in cases which for weeks or months have run the gauntlet of other treatment without benefit. Let me first illustrate this subject by a few successful cases.

Relief of Muscular Disability by Acupuncture.

Case 1.—A healthy youth, aged twenty-two, fell from a haystack and dislocated his left shoulder in July, 1870. The dislocation was reduced by manipulation by Mr. Kemp, of Castleford, and then the patient came under my care at the hospital. A month after the injury, on being told to use his arm, he found the shoulder stiff, and the muscles, especially the deltoid, powerless, so that he was not able to raise the elbow more than a few inches from his side. An acupuncture needle was then inserted through the deltoid into the fibrous tissue about the joint until arrested by bone, first on the posterior, then on the anterior part of the shoulder, the needle being left for about one minute in each place. Immediately after the removal of the needle he was able to raise his hand to the height of his shoulder, in five minutes to the height of his head, and in half an hour he could hold it straight up above his head as perfectly as the sound one. There was no relapse of stiffness, and he remains perfectly well. Cases equally striking I have seen many times at the Leeds Infirmary in the hands of the late Mr. Smith, my father, and Mr. Samuel Hey.

Case 2.—A patient of mine, aged about twenty-three, was pitched off horseback and fell on his shoulder. At the end of a fortnight he was disappointed to find that his shoulder was still disabled and stiff, and painful at one spot near the joint. A needle was then introduced into the painful spot down to the bone. On its withdrawal I told him to use his arm, and, to his surprise, he found that he had regained perfect use of his shoulder, and that all pain had ceased. No further treatment was required.

Relief of Pain by Acupuncture.

CASE 3.—A lady of this town married, and went to live in a midland county. Her first labour was tedious and difficult, and for some reason or other was followed by coccygeal neuralgia. As she had suffered severely for about six months, being rarely able to sit down with comfort, her medical attendant urged her to go up to town to consult a specialist; but as she wished to visit her relatives in Leeds, she put herself under my care. Having examined the coccyx, both externally and by the rectum, without discovering any source of the pain, I plunged an acupuncture needle deeply into the fibrous tissues on each side of the coccyx, occupying about one minute altogether. For three or four hours she suffered pain from the puncture, and then all pain ceased.

The following case was related to me by my father:

CASE 4.—An elderly gentleman, who had for a long time suffered from pain in the under-surface of the foot, near the os calcis, walked into my father's consulting room, limping. Finding that he had been for some time under treatment by medicine of various kinds without any benefit, my father at once introduced the acupuncture needle; and the patient, before leaving the room, was able to walk perfectly, without any pain or defect in gait.

Another very remarkable case came under my notice in August last.

CASE 5.—Geo. U——aged nineteen, residing at Barnsley, applied in November last for admission into the Leeds Infirmary on account of the disablement of his right wrist from a sprain five years previously. The sprain was followed by pain and weakness of the arm and hand, which slowly increased until, five months ago, it completely disabled him from work. I found the structures round the joint swollen, the muscles of the forearm wasted, and the fingers so stiff that he could not more than half close the hand, and could hardly have grasped a billiard-ball. An acupuncture needle was thrust deeply into the swollen tissues, first on one side of the joint, then on the other, being held about a minute in each situation. In half an hour he was able to close the fist and touch the palm with the tips of his fingers. Three days later he appeared again, free from pain and able to close the fist, the swelling round the joint having all but disappeared.—Dec. 21st: There is no relapse. He has tried to resume work, but finds it too heavy for his wrist; he is therefore advised to take some lighter employment for a year.

The foregoing facts are sufficient to show that in acupuncture we possess a mode of treatment which occasionally proves to be of great value, and is worth being more extensively known and practised than is the case at present. When, however, we leave the facts, and attempt to indicate the cases to which the treatment is suitable, and to explain how the remedy acts, it must be confessed that we tread on very uncertain ground. It is therefore with some diffidence that I venture to offer the following indication of the kind of cases in which we have most frequently attained success, and to suggest what appears to be a possible and reasonable explanation of results so definite and remarkable.

I. *Cases suitable for Acupuncture.*

1. *Muscular debility.*—Cases in which there has been a bruise of muscle (or nerve), as in a fall on the deltold; or stretching or tearing of muscle or tendon, as in dislocation of the shoulder; followed by rest (i.e., disuse) of the muscles for two, three, or four weeks, and in which at the period of resuming work the muscles are powerless. After four weeks, it is probable that, the longer the delay, the less chance there is of acupuncture doing good.

2. *Relief of pain.*—My rule is a somewhat artificial one. Whenever a fixed pain has existed for some time, and has resisted ordinary means of relief, general and local, I try acupuncture; and, speaking roughly, out of ten cases, there is a brilliant result in one, improvement in three or four more, and failure in the remainder. The cases in which success most frequently results are those in which there has been an injury or subacute inflammation of fibrous tissue, such as tendon or ligament, as occurs in sprains and some erratic forms of rheumatism.

II. *Mode of Action of Acupuncture.*

1. *In muscular debility.*—Let us consider the condition of the shoulder after reduction of a dislocation of the head of the humerus. Muscles previously in good tone, and in condition for hard work, are suddenly thrown into a state of rest and idleness for three or four weeks. During this period the muscular fibres waste from disuse, and the arteries, having to supply less blood to the diminished bulk of muscle, become proportionally reduced in calibre. Over and above the diminution of calibre proportioned to the reduced muscular bulk, there must be a further diminution from the cessation of the demand for blood for carrying on the active tissue-change which accompanied the active work of the muscles. The arteries, therefore, of the disabled muscles must have become reduced in calibre in a degree greater than would be accounted for by the mere muscular wasting, so as to be capable only of nourishing the wasted muscles *when at rest*, and *not when at work*. The mere act of will is then inadequate to force sufficient blood into the muscular fibre to give it tone to act. This defective power of will the stimulus of acupuncture supplies, by producing a temporary congestion and corresponding increase in the calibre of the vessels and in the blood-supply. Two facts seem to point to this explanation: one, that on puncturing the skin we often find, in the course of a minute or so, an area of redness—i. e., of vascular excitement—of about an inch or more in radius: the other, that the recovery of muscular power is *gradual*, not sudden, beginning immediately after the puncture, and continuing and increasing for twenty or thirty minutes. Moreover a want of power depending upon the wasting of the muscles could not be recovered from in such a short space of time.

2. *In relief of pain.*—The following seems to me a likely explanation of the manner in which pain is relieved by acupuncture. The injury or inflammation of the offending fibrous tissue has produced a defective nutrition of the nerves pervading such tissue. These nerves are *starved* of their

proper supply of blood, the vasa nervorum being morbidly contracted from pressure or other cause, and the nerves are ill-nourished and in consequence painful. The needle produces a temporary active congestion—a flushing of the vasa nervorum, and thus acts as a starting-point for improved nerve nutrition and for consequent cessation of pain. Such an explanation of relief of pain by acupuncture seems to me in harmony with the views of the causation of neuralgia discussed by Professor Rolleston in the opening of his address on Physiology at Oxford.

In conclusion, let me refer those interested in the subject of this paper to the article "Acupuncture" in the Cyclopædia of Surgery by the late Dr. Elliotson. I may also add the following from a friend many years my senior, who writes to me: "I remember at the Birminingham Hospital it was all the fashion at one time. We used to stick half-a-dozen needles into the deltoid, e. g., and leave them for a quarter of an hour, with sometimes 'wonderful' results."

Leeds, March, 1871.

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ON VENEREAL DISEASES.

Being an Abstract of Clinical Lectures delivered in University College Hospital,

By Berkeley Hill, M.B., F.R.C.S.,

Assistant-Surgeon to the Hospital, and Surgeon for Out-Patients to the Lock Hospital.

No. I.

GONORRHŒA IN MEN.

Introducing his subject by advising his audience never to encourage a tone of levity in speaking of these diseases, and, in order to learn speedily what is the matter, always to examine their patients methodically, the lecturer notified his intention to bring before the class examples of the three leading venereal disorders—namely, gonorrhœa, sores, and general syphilis as far as regards the eruptions on the skin and mucous membranes. Several patients were brought into the theatre to exemplify the ordinary varieties of acute urethritis in the male. The symptoms and anatomical characters of the disease were described, and the modes of treatment applicable to the various forms were detailed. Severe abortive methods, if used at all, must be resorted to only in the very earliest stage, before the discharge had come; but their adoption was strongly deprecated. If attacked in the first two days, a discharge can often be cut short by hourly or two-hourly injections of half- or quarter-grain of nitrate of silver, of half a grain of sulphate of zinc or tannin, to the ounce of water. To use this, the patient must keep quiet in bed or on a sofa, and combine with it the treatment more suited for an inflammation in full progress. For such early cases Mr. Durham's elastic bottle and vulcanite nozzle injector is very suitable. By this the lotion or stream of warm water is thrown from the syringe from behind forwards to the meatus, so that the whole diseased part can be flushed out freely. With this exception, the time for injection comes when inflammation subsides. During the stages of increasing irritation the patient should comply, as nearly as his avocations will permit, with the following conditions: Perfect rest; tepid baths, immersing the whole body for half an hour or an hour, twice daily. He should take, every four or six hours, a saline draught, such as the following: Two scruples of bicarbonate of soda, two scruples of white sugar, and two drops of essence of lemon, in six ounces of water. If constitutional disturbance come on, a saline containing one-fourth or one-fifth of a grain of tartrated antimony should be given until the skin grows moist and the pulse soft. Severe pain in the groin or perineum calls for six to eight leeches, repeated even the same day if the pain return. The parts must be kept well supported, very clean, and enveloped in warm wet rags. Scalding is best relieved by removing wine, beer, coffee, asparagus, and other irritants from the diet, by diluting the urine with frequent demulcent alkaline drinks, and by immersing the penis in a cup of ice-cold water while the bladder is evacuated. Heat sometimes answers better than cold; for this, apply very hot sponges on each side of the penis while the urine flows. Let both be suggested; but cold injections into the passage do more harm than good. When the organ is semi-erect and turgid with extreme congestion, a fifth of a grain of morphia injected under the skin at bedtime, or a suppository of one-third of a grain of morphia and two grains of belladonna extract relieve very much. These are also the most effectual remedies for chordee.

When the acuteness of the inflammation has passed, the time for checking the discharge has arrived. For this the so-called specifics have greater success the more carefully the right moment for their use is chosen. They may be given when the scalding is gone or nearly so, when the discharge is plentiful or greenish-yellow, and when the redness has greatly subsided. But they should never be employed, however long the discharge has continued, if the scalding is still severe, if the glans is still swollen, if the mucous membrane is of a dull violet-red, and if the discharge leaves on the linen large grey stains with a yellow centre. In these cases keep to the alkalies and warm baths. Specifics comprise copaiba, cubebs, oil of sandal-wood, tar, balsams of tolu or Peru, Canada balsam, turpentine, &c. The latter are seldom used, and are probably only of service so far as they resemble copaiba. Several modes of giving copaiba were described; the quantity to be taken in twenty-four hours, by small frequent doses, rather than by two or three large ones, being from one to three drachms. Samples of capsules, mixtures, and pastes of copaiba were shown; and a novel French preparation—a jelly—was handed round, which Mr. Hill finds patients take very readily. The specimen was prepared by Mr. Martindale, dispenser to the hospital, who has improved the formula for its preparation.[*]

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[*] This is Mr. Martindale's formula:—Take of thick copaiva eight ounces; powdered sugar, four ounces; honey (not crystallised), four ounces; distilled water, five drachms; oil of pepermint, one drachm; roseine, one-tenth of a grain (dissolved in twenty minims of water). Put the honey, sugar, copaiva, and water in an evaporating dish. Keeping it well stirred, heat the mixture gently till it boils, and continue the agitation and ebullition about five minutes. In the first part of the operation two distinct strata are formed: the upper, the copaiva; the lower, the honey &c. As the water is evaporated, numerous bubbles of steam are given off just as the whole becomes a homogeneous jelly. When it has partly cooled stir in the roseine and oil of peppermint. When well made it should resemble raspberry jelly. Should this very minute quantity of roseine (one of the aniline pigments) be objected to, an ammoniacal solution of carmine gives a very good color.

It is a bright jelly, almost as firm as calf's-foot jelly, very attractive by its rosy-red color to the eye, and not repulsive to the palate, its flavor being masked by peppermint. As it contains 75 per cent. of copaiba, large quantities can be taken in a small bulk. If a piece as large as a filbert be rolled in wafer-paper, it can be swallowed without being tasted at all. The after-effects of nausea, diarrhœa, &c., are not more if so frequent as from other forms of copaiba. These evil effects, besides the rare chance of hæmaturia, demand caution in the use of copaiba, in patients trying it for the first time. Cubebs, better suited for old chronic discharge, should be given as the fresh powder; the oil, and even the etherial extract, are of doubtful value, for it is said that the virtue lies wholly in a resin that is with difficulty separable. Three to six drachms should be given in the twenty-four hours. To oil of sandal-wood, which had been extensively tried at the Lock Hospital, Mr. Hill could not attribute any advantage over copaiba, though now and then it could be borne when the other could not. Dr. Henderson has suggested the best formula—viz.: Oil of sandal-wood, one ounce; rectified spirits of wine, two ounces; oil of cinnamon, twenty-five minims: one or two drachms three times a day. Or the oil may be administered in capsules. Injections should be used in the same stages as copaiba. Various mineral and vegetable astringents were enumerated, and the following rules laid down as applicable to all injections:—The bladder should always be voided before injecting the urethra, both to sweep out the mucus and to allow a long interval for the astringent to lie in contact with the mucous membrane. Every injection which causes more than a few minutes' smarting or heat is too strong, or not of the right sort. Injections should be used at least thrice daily, and usually five or six times; and, beginning with weak solutions, they should be strengthened every two days until the discharge stops, and then discontinued by easy stages. When the discharge is abundant, the injection should be thickened with mucilage, and rendered less piquant by adding liquid extract of opium or extract of belladonna. Mr. Hill remarked that permanganate of potash as an injection had been put to rather extensive trial at the Lock Hospital with all kinds of discharges, but very few of the patients had derived benefit from it. Most were made worse, and some complained rather vehemently. It was suspicious that a considerable number of the patients so treated did not appear a second time. Either their disease was cured off-hand, or they were so little enamored of the permanganate that they declined a second trial. A variety of urethral syringes were shown, those of unsuitable pattern being pointed out, and the mode of instructing patients in their use described. A new one, constructed by Mr. Hawkesley, of Blenheim-street, Bond-street, for patients to carry in the pocket, with a small supply of lotion, was shown. It resembles a funnel-shaped drop bottle, about three inches long, terminating in a nozzle below, and closed by an india-rubber diaphragm above. The syringe is easily filled and emptied by alternately depressing and elevating the thumb on the elastic cover, and about two drachms can thus be drawn from a bottle and thrown into the urethra in a few moments. The limited trial to which this syringe has been yet put makes it necessary to speak with caution, but it has proved very useful in several patients' hands. After describing the leading concomitants or consequences of urethritis, Mr. Hill concluded by warning his hearers not to suppose that every case of gonorrhœa, either in men or women, was set up by a specific contagion. Perhaps ninety out of every hundred are so; but the most efficient predisposing cause—one seldom absent in those affected—was any violent irritation of the urethra, such as prolonged sexual excitement, alcoholic excess, and particularly the use of so-called "preventive" injections immediately after coitus. This was stigmatised as a very dangerous procedure. With such predisposing causes urethritis might arise from contamination with almost any disordered vaginal discharge without any specific contagion.

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ON SURGICAL DRESSINGS.

By T. Hiron Bartleet, M.B., M.R.C.S.,

Surgeon to the Birmingham General Hospital.

I have been for many years increasingly disappointed with the ordinary dressings for suppurating wounds, such as amputations, excisions, burns, chronic abscesses, ulcers, &c.; and I believe a feeling of dissatisfaction is somewhat general. To this feeling may be attributed the great variety of dressings and modes of dressing that have from time to time been recommended, and to it also the discarding by some of dressings altogether—the advocates of this plan recommending, for example, that a stump should be placed on a protected pillow and left altogether uncovered. Dressings have been, and still are, so frequently a harbor for dirt and decomposing discharges, that it is not surprising that their use should be less common and less complicacated, or even dispensed with altogether.

Dressings usually have had some connexion with lint. Now, I have found lint to be, under almost all circumstances, a useless, and very often an injurious dressing. The lint of commerce is usually prepared from calico, instead of linen; and the cotton fibre is much more irritating than that of flax—a fact which will be readily understood by comparing the two under the microscope. Lint, too, is non-absorbent to a degree that few would expect, though every surgeon must have occasionally found the flaps of an amputation or open excised breast plugged by the lint laid over it, the first few drops of discharge having gummed down its edges to the parts near.

For the application of unguents, now so seldom thought necessary, linen is much more convenient than lint, as it receives the ointment more regularly, and is less heating and bulky when applied.

I use lint myself rarely, except for two purposes: first, to check hæmorrhagic oozing, or to repress exuberant granulations, in which latter case sheet tin or lead is cleaner and more efficacious; and, secondly, for the application of lotions, where lint is useful from its capability of containing more of the fluid than linen will do—that is, when the lint is well soaked.

Even the plan of placing the suppurating part, as a stump, on a pillow covered with india-rubber sheeting, excellent though it is in its simplicity, has its inconveniences, from the tendency of the discharge to run off the pillow on to the bedclothes.

Moreover this plan cannot be carried out in cases of suppurating wounds on the trunk.

It appears to me that what is wanted is, a dressing unirritating, very absorbent, capable of retaining lotions and of being carbolised, and, for general and especially for hospital use, of an inexpensive character and readily obtainable. I think all these requirements are found in picked oakum. This dressing is in frequent use among American surgeons, and it was, I believe, first introduced into this country by my friend the late Mr. Redfern Davies. Oakum is readily to be obtained at gaols or workhouses in its crude state, in which condition it is used for caulking ships; and it is moderate in price. It consists of old ropes unpicked, and it is therefore tow, but different from tow in two points: firstly, that it retains the agreeable and cleanly odor of tar, the presence of which may confer upon it some disinfecting properties; secondly, that, having been for some time twisted, when unpicked it retains a "springy" resilient condition, which renders it much more absorbent than tow. In a few words, picked oakum differs from tow just as curled horsehair differs from ordinary horsehair, and its use is in accordance with this difference.

I have been in the constant habit of using picked oakum for several years, first in the Birmingham Children's Hospital, and later at the General Hospital. I have used it in all kinds of suppurating wounds, and I believe invariably with advantage. It is some testimony to its value that every house-surgeon who has used it has expressed to me a high opinion of it.

It may, perhaps, appear necessary to write about the treatment of suppurating wounds when carbolic acid is doing so much to prevent their existence. But there are always cases in hospital that cannot be treated on Lister's plan, or in which that treatment has failed, or cases that have not come under treatment until suppuration has begun. Moreover, the time and care and extra assistance required in the sealing and after-dressing of wounds by Lister's process will prevent this treatment becoming very general.

Now, of course, I do not assert that picked oakum will heal an abscess, a sinus, or an ulcer; but when such are freely suppurating I think its use will materially expedite the cure by removing the pus as rapidly as it is formed, and I also believe that the comfort of the patient will be greatly increased by its use. In any hollow wound which cannot readily be placed in a position to drain itself, it is most useful. A few months ago I removed by the trephine a portion of the frontal and parietal bones of a child, whose skull had been fractured by a kick from a horse. The dura mater was uninjured. The hollow was a few days after constantly filled with pus, which, from its lying on the dura mater, gave me some anxiety. The application of a dossil of picked oakum maintained in place by a light bandage, and reapplied night and morning, kept the cavity quite empty.

I usually treat my amputations without dressings of any kind, only placing them on a protected pillow, and first putting under them a double handful of the oakum, which absorbs the secretions and prevents them running off the macintosh on to the bed. The oakum is readily removed two or three times daily, and, by its resiliency as well as by its cleanliness, is a comfort to the patient.

In abscess of the breast, both when the patient is in bed and when she is up, a double handful of oakum placed under and on each side of the breast, and kept in position either by a light bandage or by a piece of strapping, will keep the patient dry and clean far better than any other mode of dressing I know of. I am at present dressing a private case of excision of the breast in this way, and have used no other application from the very first. In fact, in any case of suppuration, in the use of drainage tubes, and especially in deep wounds, where it is difficult to place the opening of the wound in a depending position, the oakum will be found invaluable.

I know of only one objection to its use, and that is its apparent roughness. I say *apparent*, because I have heard no complaints of its being irritating to a patient. I used formerly, in special cases, to place between the wound and the oakum a piece of cap-net, which either did, or at all events appeared to do, all that was required. But now the oakum is being carded by machinery, and thus prepared it is much softer than the hand-picked, while it does not seem to have at all lost its springiness or its absorbent power. I am now using some sent to the General Hospital by Messrs. Southall and Dymond, by whom it is also prepared, and I find this, which the manufacturers have named "Tenax," in every way a most useful form of oakum. I think it will probably take the place of hand-picked oakum, if it can be produced sufficiently cheaply. In hospital practice, or where the expense is an object, the tenax might be used for immediate contact with the wound, while a mass of the cheaper picked oakum might be placed outside this. The ordinary hand-picked oakum may be readily procured at a cheap rate at most gaols and workhouses.

I have found so much advantage to my patients and convenience to myself from the use of this dressing that I have felt constrained to write these few remarks, to induce others to participate in the advantages which are equally important to surgeon and patient.

Birmingham, Jan. 1871.

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ON SOME DISORDERS OF THE NERVOUS SYSTEM IN CHILDHOOD.

Being an abstract of the Lumleian Lectures for 1871, *delivered at the Royal College of Physicians.*

By Charles West, M.D.,

Physician to the Hospital for Sick Children.

LECTURE I.

After a short sketch of the founders of the lectures, Dr. West observed that the diseases of early life differ in many important respects from those of adults; they run a different course; symptoms have a different import; and the probabilities of death or recovery are determined by different considerations.

Diseases of the nervous system present in childhood peculiarities more remarkable than those of any other class. This is owing to the circumstance that the nervous system is more unformed; its functions more rudimentary; its condition one of chance and development, the like of which does not take place in organs of respiration and circulation, or even of digestion. Among adults a large class of ailments consists of simple pain, independent of local disease. In infancy and childhood, on the other hand, pain referred to any part signifies, almost without exception, that disease of some sort is going on there or near at hand. Even in later childhood, the rarity of real neuralgia is extreme. In two classes of cases this caution is important—first, in pains referred to the head, and, secondly, in pain referred to the leg. The former nearly always indicate organic disease, especially tumour of brain and tubercular hydrocephalus; the latter usually is due to hip-joint disease. Pain dependent on cerebral disease is rarely limited to one part of the head, in neuralgia it is commonly localised. One form of neuralgia is not very uncommon in childhood, that known in later life as "sick headache," but Dr. West has never met with it in children who had not gone into the schoolroom, and often found it to be distinctly due to too continuous mental application.

Disorder of motor power is frequent in childhood, though pain is rare. Derangements of digestion, too long fastings, a too-full meal, the irritation of teeth, the outbreak of an eruptive fever, all may give rise to convulsive movements or a fit of convulsions. The first convulsions in childhood are generally due to eccentric causes, or to some primary disease of brain; but, in the latter case, are nearly always preceded by other symptoms (though it may be that these are obscure), and are accompanied by other grave evidences of nervous disease, especially by local weakness, inequality of pupils, &c. Convulsive movements in early life are often partial, but such attacks have always a great tendency to become general. In infancy and early childhood the convulsions are commonly violent, attended with unconsciousness, and death not unfrequently takes place in the paroxysm. They have a great tendency to recur without obvious exciting cause, and then receive the name of epilepsy. In proportion to the frequency of the fits, the mental development is retarded. The same class of causes which produce epilepsy in the child tend, later on, to cause chorea, a disease which may, however, occur at any age. Dr. West has seen one case at eight months of age. Whatever may have been their original cause, all convulsions show a great tendency to recur. Out of forty-two epileptic children, not including epileptic idiots, twenty-three had suffered from fits in infancy. Hereditary predisposition was observed in only seven out of the forty-two, and in three only of the twenty-three. Hereditary tendency to epilepsy probably comes into play later in life than the age of childhood, just as the hereditary tendency to hysteria manifests itself with the evolution of the sexual system, and, still later, that to insanity under the pressure of life's cares. Those cases of fits in childhood are more likely to result in permanent epilepsy, in which no exciting cause is discoverable, and in which the causes have acted on the emotions and higher intellectual powers. Frequent attacks of *le petit mal* are of grave augury, and are very likely to be overlooked in the child. Fits are sometimes accompanied by moral perversion, a condition which is often associated with mental dulness, but in the child shows itself first, and is the more easily recognised, while in later life the reverse is the case. In the treatment of convulsions of childhood, intestinal derangements must be carefully set right. Worms, Dr. West thinks, are a less frequent cause than they are assumed to be by the public, lay and medical. All the alleged specific remedies for epilepsy have, in Dr. West's hands, failed more or less completely. The only one exerting any influence is the bromide of potass, which in a few cases has given remarkable results; but in the majority of instances, the improvement, often manifested at first, is not maintained; the agent loses its effect altogether, or has to be augmented until doses are reached which cause so much depression that the remedy has to be discontinued. Lastly, moral treatment may do a good deal towards curing epilepsy. To this Dr. West ascribes the cessation of fits so often witnessed during a sojourn in a hospital.

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ON

THE CONDITION OF THE CIRCULATION IN SCROFULA.

By Wm. Knight Treves, F.R.C.S.,

Visiting Surgeon, and Late Resident Surgeon, to the National Hospital for Scrofula.

Whilst making these few observations on the condition of the circulation in scrofula, I must, to avoid misunderstanding, briefly explain what I mean by scrofula, and how it is to be distinguished from those pathological conditions which are usually confounded with it. The first and most important of these is tuberculosis; and I must endeavor to draw a distinction between tuberculosis and scrofula, as the state of the circulation which is found in scrofula does not exist in tuberculosis.

Before describing the chief pathological condition existing in scrofula, I would express my firm belief (for which I will in a future communication bring forward my evidence) that, after putting on one side tuberculosis and hereditary syphilis as totally distinct diseases, there is no evidence whatever of any specific taint in scrofula; that, on the contrary, there is every reason to believe that scrofula is merely slow inflammatory action of an unusually chronic character, produced by slight causes or arising spontaneously in persons predisposed to take on this action by constitutional debility, as evidenced principally by certain defects in the performance of the function of circulation.

The distinguishing pathological condition in a scrofulous person is a peculiar deficiency or weakness in the circulation. The blood appears, from some cause or other, to stagnate, especially in the exposed and superficial portions of the body, causing an appearance of venous congestion. This congestion, indicated on the cheeks and extremities by a purple or bluish tinge mingled with the natural color, or by red of various shades disposed somewhat patchily, is one of the best signs of scrofula, and is, in fact, an unfailing indicator either of the disease itself or of a predisposition to its attacks. Occasionally a mottled appearance prevails over the whole body. The complexion thus caused varies from the over-florid hue of the apparently hearty child, in whom perhaps no consequences have arisen from his constitutional condition, or merely some ailment which does not affect his health, to the dusky tinge mingled with white of the exhausted sufferer. This color in the cheek, which may sometimes be described as peach-colored, is distinguished from that of health by the latter's difference of hue, more gradual shading off, greater uniformity of tinge, and clearness of surrounding skin. The scrofulous person is generally rather dusky, and even in cases where this duskiness is not shown in the face, and where the complexion may be fright if overloaded with color, the constitutional condition may be revealed by the hands, the backs of which almost invariably exhibit the blue and mottled appearance I have described. A further distinction is that, if the scrofulous person has a bright color, it appears to be on the surface, is abrupt, and obtrudes itself on one's notice, while the same amount of color in a healthy person is more diffused and not so remarkable.

Another peculiarity in scrofulous individuals, due also to the condition of their circulation, is a swollen appearance of their extremities; they generally look as if they were suffering from extreme cold, and this appearance of the hands and feet remains, to a greater or less extent, even in very hot weather.

Their legs and feet often have a doughy feel, and lack the firm resiliency of health.

Now this venous congestion exists not only in the skin and external surface of the body, but also in the mucous membranes, and is the predisposing cause, in a typical case of scrofula, not only of the disease itself, but even of the very appearance of the patient. The pulse is below the average of health, of fair volume, soft and regular, but wanting in force. The temperature is certainly not raised, and I am inclined to believe, from some observations I am making, that it is below that of health.

Scrofulous people are, as a rule, fleshy and heavy-looking, although not wanting in intellect; they are flabby and often deficient in muscular power. Their lips, alæ of nose, and eyelids are generally tumid from congested mucous membrane, and their abdomen is inclined to be prominent. Their extremities are large and swollen, and do not usually exhibit that symmetry which may be found in healthier persons. Their hair may be any color; the red and the dark hair show the best specimens of scrofula, but the dark are the more numerous. They do not in any particular resemble people suffering from tubercular disease, nor have they any tendency to become tuberculous. They do not waste, nor do they suffer from that irritable form of dyspepsia known as strumous dyspepsia. Their circulation is not quickened, nor their temperature raised. They have not the quick, irritable pulse of tuberculosis; nor have they, even in advanced cases, any fever or night sweats. Their disease does not run a rapid course, but generally extends over many years, and very rarely proves fatal. They are good subjects for operation, exhibiting no irritability, the only drawback being that their wounds have a tendency to become sluggish. In these and numerous other symptoms they are diametrically opposite to persons suffering from tubercular disease; and I hope shortly to be able to lay these distinctions, drawn from observations in a large number of cases, more clearly and fully before the profession.

Margate, April, 1871.

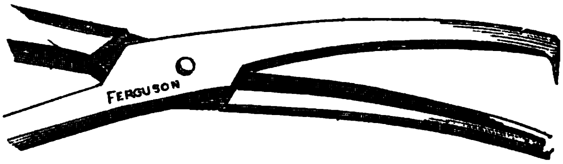
A DESCRIPTION OF A

NEW KIND OF SCISSORS FOR REMOVING SUTURES.

By Thomas Smith,

Assistant-Surgeon to St. Bartholomew's Hospital, and Surgeon to the Children's Hospital.

The scissors, of which a woodcut is appended, were made for me by Messrs. Ferguson, for removing tumours from the palate. They are constructed so as to catch, divide, and hold a suture by one and the same movement. At the extremity of one blade is a fine hook, wherewith to catch the loop of the suture; and there are flat surfaces on each blade, behind the cutting edge, to hold it fast when divided. Being both scissors and forceps in one, there is no need of an assistant in withdrawing sutures from the palate, as the tongue can be held down with the forefinger of the left hand while the scissors are used.



In employing these scissors care must be taken to divide the suture on one side of the knot, and to turn the cutting edges of the blades away from it, otherwise the knot will be drawn into, and not out of, the suture holes.

The scissors can be conveniently used for removing the wires after the operation of the cure of vesico-vaginal fistula.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. BARTHOLOMEW'S HOSPITAL.

OLD PERITONEAL ADHESIONS INTERFERING WITH THE RISE OF THE UTERUS INTO THE ABDOMEN AT THE FOURTH MONTH OF PREGNANCY; CYSTITIS; RETENTION OF URINE; DISTENSION OF THE BLADDER; SLOUGHING; PERFORATION; DEATH FROM GENERAL PERITONITIS.

(Under the care of Dr. Southey.)

Lydia M——, a fair-complexioned, well-nourished girl of sixteen, applied for admission on the

23rd of March. Her breasts were enlarged and presented a well-marked areola, characteristic of about the fourth month of pregnancy. Her abdomen was much distended, full, tender, and dull generally to percussion to about two inches above the umbilicus. She stated that she had had sickness for the last fourteen days, with pain over her loins, and occasional attacks of shivering. Her bowels had been more or less confined all that time, the effort to defecate increasing her pain. At first she had frequent desire to pass her water, but difficulty in making it; but for the last five days she had suffered complete retention. This morning and the day previous a little had dribbled away from her involuntarily. On the 21st of March she had taken a dose of castor oil, which acted upon the bowels very slightly. As to her previous history, she acknowledged that she had latterly been leading a loose life; but neither knew nor fancied that she was pregnant. Her catamenia had been irregular for some months past; but she felt certain that she had been unwell a fortnight ago, having taken some pains in sitting in a bath and sponging herself with hot water to bring her courses back. An elastic catheter was passed before she was brought up into the ward, and six pints of alkaline and somewhat offensive urine were withdrawn from the bladder. Fifteen months previously she had been laid up, as she believed, with "gastric fever." Her face was flushed; her tongue red, raw-looking, and inclined to dryness. Temperature 100°; pulse 140, and very feeble; respirations 30, and shallow.

Upon making a vaginal examination, the external genital organs were found to be much swollen and somewhat livid-looking; the orifice of the urethra was drawn upwards and backwards; the posterior wall of the vagina was prolapsed, and pushed forwards like a fleshy mass between the nymphæ; the uterus was enlarged and much retroflexed; the os uteri was swollen and patulous enough to admit the tip of a finger; and the whole organ, although not larger than seemed compatible with the other evidence as to the date of her pregnancy, was so much displaced from its normal position that the fundus was brought to lie against the coccyx and the os close under the symphysis pubis.

The rectum contained some scybala, and some purulent discharge proceeded from the vagina; but it was the dislocation of the fundus of the uterus backwards which had led to the shortening of the vagina, its bending upon itself, and the protrusion of its posterior wall like a fold within it.

Dr. Southey directed that a milk-and-water enema should be given in order to empty the rectum; that a catheter should be introduced again in the evening, in the probable event of the bladder not recovering tone sufficiently, after such serious distension, to expel its contents; and ordered a milk dietary, and an effervescing draught of citrate of potash with ten drops of tinctura opii every six hours.

At nine o'clock the same evening the bowels had been freely opened, and a good many scybala had come away; three pints of high-colored albuminous urine had been drawn off without any difficulty with a catheter; and the patient was found to be altogether more comfortable.

March 24th.—Pulse 96; temperature 99°. The patient has had some sleep; does not complain of much pain unless she is moved. She lies very still on her back, with her legs drawn up. Is very thirsty. The tongue is still red and inclined to be dry. The bladder is again distended, and rises nearly to the umbilicus. Great difficulty was now experienced in introducing the catheter, for the posterior wall of the urethra had apparently given way, and the instrument, instead of passing into the bladder, re-entered the vagina. Mr. Savory, however, whose assistance had been solicited, succeeded in introducing a large prostatic catheter into the bladder, whereby four pints of urine were drawn off at about 2 P.M. The catheter was retained in the bladder by portions of tape passed round the trunk and thighs.—9 P.M.: Pulse 120; temperature 101°. Not much discomfort from the catheter; the urine dribbles away constantly by the side of it. The patient continues to take the saline with the tincture of opium, but only fluid nourishment; her thirst is excessive.

25th.—9 A.M.: Pulse 120; temperature 102°. The patient has passed a very restless night. The bladder was emptied and the catheter withdrawn. Dr. Greenhalgh, who saw her in consultation with Dr. Southey, agreed that an attempt should be made to replace the uterus; but, as the parts were all swelled and very painful, it was necessary to give chloroform. The uterus was then lifted up, and an air-bag was introduced into the vagina and distended in the hope of maintaining the fundus more *in situ* and relieving the pressure upon the urethra. Unfortunately this endeavor was frustrated by an expulsive effort which the patient made upon returning to consciousness, by which the air-bag was forced out. At 11 A.M. she had a severe rigor; and at 3.30 P.M., as she had passed no urine since the removal of the catheter at 9 A.M., Mr. Savory's services were again enlisted to introduce it.

26th.—9 A.M.: Pulse 120; temperature 100·2°. Bladder emptied. Slept fairly; but complains of general pain over the abdomen. The knees are still drawn up; the tongue is red, but moist. She has been sick two or three times, vomiting chiefly a green bilious fluid. Has occasional hiccough.—8.30 P.M.: Pulse 140; temperature 100·4°. Three pints of high-colored, alkaline, albuminous urine have been drawn off. The patient complained that the catheter gave her pain; that it felt as if it would come through the bladder. It was therefore withdrawn. She had taken but little nourishment; but the sedative drops appeared to ease her.

After a rather restless night she was seized with sudden, sharp, abdominal pain at 8 o'clock on the morning of the 27th, and could not for a few moments be kept in bed. Her pulse became very rapid, and scarcely perceptible; her knees were drawn close up to the abdomen. She passed at once into a state of extreme collapse, with hurried respirations and hippocratic aspect, dying at 1 P.M.

The notes of the post-mortem examination, made twenty-four hours after death by Dr. Gee, are as follows:—Breasts large, with large brown areolæ. On opening the abdomen, the anterior reflexion of the peritoneum did not reach lower down in front of the bladder than three inches below the pubes. The fundus of the bladder, cœcum, the lower part of the small intestine, the fundus of the uterus, the sigmoid flexure, and the extremity of the omentum, were all matted together by very old adhesions. A little recent lymph, with evidence of obviously quite recent peritoneal inflammation, was spread over the rest of the peritoneum. Upon breaking down the old adhesions, a sort of cavity was discovered behind the bladder and above the uterus, which contained a brown, turbid liquid. This cavity communicated with the bladder by a sloughy hole in the posterior wall of the latter. The bladder was very large and thickened; the mucous membrane was strongly injected, and presented great sloughy patches that implicated all its coats. It was dragged upwards and backwards by the enlargement and dislocation of the uterus, the lower part of it being strongly adherent to the fundus of the uterus. One slough, already noticed, about the size of a crown piece, communicated with the peritoneal circumscribed cavity above mentioned. The neck of the bladder was much elongated, and a slough upon its posterior aspect opened into the anterior wall of the vagina. The ureters and pelves of both kidneys were considerably dilated, their lining membranes not injected; the cortex of the kidneys much swelled, their structure confused and opaque; several patches, looking almost like commencing sloughs, were found upon the mamillary portion of the pyramids. The uterus was ovoid, and the os was situated at the point where the inferior surface joined the anterior and smaller end; it was patulous, admitting the tip of the little finger for three-fourths of an inch. Above that point was a mucous plug. The uterus contained a male fœtus of about four months. The pelvic cavity was occupied very tightly by the uterus and the rectum much compressed. The other viscera were healthy.

Remarks.—Dr. Southey observed that the tough adhesions found at the brim of the pelvis, above the uterus and behind the bladder, were of old standing; they might perhaps date back to some local peritonitis, induced by the gastric of typhoid fever which she said she had had fifteen months previously; but, doubtless, they had interfered with the development of the uterus in the normal direction, and must have altogether prevented its rising into the abdominal cavity. The uterus, as it increased in size, had compressed both the rectum and the bladder, and when its fundus became dislocated backwards, the cervix and os were tilted forwards, close under the pubic arch, and perhaps the pressure thus brought to bear upon the urethra and the neck of the bladder may, in the first instance, have led to imperfect evacuation of the bladder, decomposition of the retained urine, and the cystitis which she had described when first admitted. The ultimate retention of urine and enormous distension of the bladder had led to great elongation of its neck, and through the old adhesions between the lower part of the bladder and the fundus uteri, as the bladder became distended and passed up into the abdominal cavity the uterus was still further dislocated backwards, being bent no longer upon the axis of its own cervix, but upon the vaginal stem. The sloughing condition of the mucous membrane at the neck of the bladder had just implicated the urethra, and the opening of that slough into the vagina explained the difficulty experienced, in the last forty-eight hours, in introducing a catheter, since this tended to come back into the vagina.

The general peritonitis which ultimately led to her death was no doubt caused by the passage of some of the urine, first through the slough at the fundus of the bladder into the smaller cavity circumscribed by the old adhesions, and then at last into the general abdominal cavity.

ST. GEORGE'S HOSPITAL.

CASES UNDER THE CARE OF DR. JOHN W. OGLE.

Hysterical Aphonia and Dysphagia; treatment by valerian, shower-baths, &c.—The patient, a woman aged twenty-two, mother of several children, came into hospital only able to speak in a whisper, and complaining of pain at the right side of the neck. It was found that a small tumour, apparently connected with the thyroid gland, existed there, painful on pressure, and having the character of a cyst. She said this had burst at a former period. No disease of the lungs or other organs could be detected, and it appeared that she had had "fits" for some time, in one of which she had been insensible for some hours. The pupils were equal. The probang detected no mechanical obstruction in the œsophagus, nor the laryngoscope any disease of the larynx, but the vocal cords were rather congested. Under generous diet, valerian and steel, and shower-baths, the voice returned completely; it again left her and again returned. It appears that she had on two previous occasions lost and regained her voice suddenly. Latterly she has been rather troubled with vomiting. The history of the case, the absence of any ascertainable cause of pressure on or affection of the œsophagus and larynx (the presence of the thyroid swelling made this at first doubtful), and the results of treatment, led Dr. Ogle to look on the case as hysterical. She left the hospital recovered.

Enteric Fever treated by cod-liver and olive oils, and milk diet and tea.—Of this disease two cases were under treatment. One was a man, aged thirty-one, brought in with a dull, stupid aspect, wandering much in mind, and covered with the usual eruption. There was dulness on percussing the thorax behind, and both lungs presented abundant small crepitation. The urine contained a slight amount of albumen. Diarrhœa required opium injections at times. The case went on well, but the temperature rose one night considerably, which seemed to be explained by the formation of a large abscess at the root of one tooth. The cod oil was given three times a day, in two drachm doses. No wine. Progress, as regards the fever, continuous. Pleurisy came on, and a low pneumonic state long remained; but the man is going on well.

The other case, also a man, was treated in the same manner, the olive oil being substituted for the cod oil. As the digestion seemed to suffer, the oil was after many days omitted. The patient became convalescent, and was sitting up, when shortly afterwards a relapse of the fever occurred. He went on well, taking simple citrate of potash draughts, and wine, which appeared to be required, and has now left the hospital.

Several cases of Rheumatic Fever.—In one week Dr. Ogle admitted recently no less than ten or eleven cases of rheumatism, mostly acute, and many of them very aggravated cases. Several of them were treated with occasional draughts of citrate of potash, others with cinnamon water only, and only one with citrate of potash having excess of alkali—i. e., twenty grains of bicarbonate of potash in each dose. In most of these cases opium or chloral was used from time to time to relieve pain, and blankets were worn next to the skin. In one or two, transient traces of albumen were detected in the urine; in one the amount of albumen was considerable, and this patient was very delirious, and somewhat violent, especially during the night. The temperature was never higher than 101·1°; slight roughness of the first sound of the heart was heard *at times only*, but no pericarditis or positive indication of valvular or endocardial mischief could be detected. The patient at one time had such severe pain in one hip that disease of the joint was suspected. With simple salines, laudanum and linseed poultices, and occasional doses of chloral, milk and beef-tea diet, the patient went on well, and is now taking iodide of potassium and chinchona bark. There is now no albumen in the urine. Dr. Ogle attributed the delirium or cerebral excitement to congestion of the kidney, though at first the case looked as if it were one of what has been termed cerebral rheumatism.

In one case, that of a delicate young man, which at first appeared subacute, and was for two days treated by guaiacum, pericarditis suddenly came on. Hot spongio-piline, and subsequently leeches, were applied to the cardiac region with much relief, and simple salines were given. After a time the friction sounds subsided, and the heart became in all respects natural. The patient has now left the hospital.

We saw cases of chronic rheumatic joints treated by friction with a liniment made of *seaweed*, and imported from the Channel Islands, which appeared to be very efficacious.

Two Cases of Jaundice.—In one case, a policeman, aged twenty, there was no apparent disease of the liver, save dull pain only in the hepatic region being complained of. The urine was loaded with bile and lithates, and the evacuations were clay-colored, Under the use of farinaceous and fish and milk diet, taraxacum, and diuretics, all symptoms improved, and he left the hospital only slightly discolored as to skin. In the other case, a man aged fifty-six, there was very considerable enlargement of the liver, and great pain in the epigastrium and hepatic region and back. There was occasional hæmoptysis, and the urine contained albumen. This appeared to be a case of carcinoma of liver; but the patient soon left the hospital at his own request.

We also noticed the case of a young woman, aged twenty-three, whose *right pleural cavity* was almost full of *fluid*, and this with so little inconvenience that she would hardly allow she was ill. Œgophony was well marked. There was a phthisical family history, and also physical signs leading to a suspicion that the patient was the subject of pulmonary tubercle.

Also the case of a man who had only been a painter for five months, having previously been a cook on a foreign steamboat, who was admitted with unusually severe *paralysis of the extensors of the hands and fingers*, and also of the muscles of the arms and shoulders. He had a well-marked blue gum-lime, excepting where the teeth were wanting, and had been for five months subject to colic. He was the subject of delirium for some days, and had to be strapped in bed. This was relieved by the exhibition of wine. He is regaining power in the limbs under the use of iodide of potassium, and faradisation of the affected muscles.

Dr. Ogle also drew our attention to a case of Mr. Hewett's, which he is closely observing as regards temperature, &c. The case is one of injury of the cervical part of the spinal cord. There has been complete paralysis of all the limbs; but now the left arm and leg have partially regained power. There is a remarkable amount of sweating of the face and neck, and this is to a great degree, though not absolutely, *confined to one* side (the left); also slight interference with the muscles of the face, and with one pupil.

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LONDON HOSPITAL.

CASE UNDER THE CARE OF DR. RAMSKILL.

For the notes of the following case we are indebted to Mr. Stephen Mackenzie, the house physician.

Simple Ulcer of Stomach; perforation; localised peritonitis; recovery.—Harriet P——, aged twenty-two, a domestic servant, stated on admission that for above two months she had been suffering with a sharp pain in the back, which darted from the pit of the stomach through to the back, between the shoulders. The pain came on immediately after taking food, whether liquid or solid, and was accompanied by vomiting. She had vomited blood after eating on about six occasions, of which the last was about a fortnight before admission; the blood was of a dark color, and generally about two or three tablespoonfuls in quantity, but, once, she brought up as much as a teacupful. About six weeks before, while in the street, she suddenly felt faint; she shivered, and her teeth chattered. Though she felt no pain, she fell down. She was taken home by a policeman, but did not remember anything till about four hours later, when she came to herself again. She had a severe headache, and great pain in the epigastrium, which prevented her from sleeping, but she did not vomit. On the following day she was very "trembly," and vomited some blood. She kept her bed for three days, and then returned to her employment, but "had not been able to do her work with pleasure since." Since the attack just described she had suffered great pain at the pit of the stomach and in the back, which was brought on equally by liquid and by solid food, and was relieved by the recumbent posture and by vomiting. The pain was so severe that she often had to sit down when going upstairs. For the last week she had vomited after everything she had taken; the pain had become worse, and she had had diarrhœa. She said that she had been losing flesh slightly ever since the commencement of her illness. Menstruation occurred regularly.

On admission it was noted that her face was flushed; she had an anxious expression, and complained of headache and pain in the back, shoulder, and epigastrium. The tongue was moist and covered with a brown fur. The skin was hot; there were no spots anywhere; the hands were very tremulous. She flinched when any part of the abdomen, especially the neighborhood of the stomach, was pressed upon. The pulse was 104, the respiration 32, temperature 103·6° F. The heart's first sound was very feeble at the apex, and inaudible at the base. The lungs were healthy. She was ordered saline mixture three times a day, and milk and beef-tea diet.

Second day.—Morning: Pulse 94, respiration 28, temperature 100·2° F. Evening: Pulse 100, respiration 27, temperature 100·6° F. She is in less pain, but still has some in the back. Is very thirsty. Tongue less furred. Has not vomited since admission. Has passed a perfectly liquid fæcal motion. Ordered to suck ice, and to take a grain of opium thrice daily.

Fourth day.—Pulse 98, respiration 22, temperature 100·8° F. She feels very much better this morning. Her cheeks are flushed, the tongue is cleaner, and the lips are dry. Slept fairly well last night. Bowels open; evacuations natural. Is quite free from pain, and takes cold liquid food.

Seventh day.—Morning: Pulse 73, respiration 24, temperature 100·2° F. Evening: Pulse 99, respiration 18, temperature 100·8° F. Complains that she did not pass so good a night as usual, on account of the pain in the old place, the back. Has not vomited. Bowels open.

Ninth day.—Pulse 96, respiration 20, temperature 101·6° F. Evening: Pulse 99, respiration 18, temperature 100·4° F. Says she does not sleep well at night; feels languid, and speaks in a low voice. Bowels loose; evacuations of the color and consistence of "Thames mud." Takes what food she is allowed, and has no pain after it.

Eleventh day.—Pulse 124, respiration 24, temperature 99·6°F. Evening: Pulse 98, respiration 20, temperature 100·4° F. Is not so well this morning. Is sweating profusely, and feels very languid. Complains of pain at the pit of the stomach, which is aggravated by pressure. Tongue dry on dorsum, red at tip and edgs. She vomited to-day after some beef-tea. Bowels open twice; evacuations loose and fæcal. Evening: The pain has been relieved by a poultice. There has been no more vomiting. Bowels not open since morning.

Twelfth day.—Morning: Pulse 94, respiration 18, temperature 101° F. Slept well, and is free from pain. Tongue furred. No vomiting. Bowels open several times during the night; the motions said to have been of a light-yellow color. There is no pain in the right iliac region, nor is there tenderness on pressure.—Evening: pulse 96, respiration 15, temperature 103° F. Face flushed, and tongue furred. No pain or tenderness on pressure over the ileum. Skin rather pungent; no spots.

Thirteenth day.—Morning: Pulse 96; respiration 21; temperature 102°.—Evening: Pulse 96; respiration 24; temperature 102°. Is quite free from pain; bowels not open to-day. She vomited after taking some beef-tea.

Fourteenth day.—Morning: Pulse 90; respiration 18; temperature 99·4°.—Evening: Pulse 104; respiration 22; temperature 102·2°. Vomited twice this morning: once a clear yellow fluid before taking food, the other time after taking some bread and milk. She is not, nor has she been, in pain.

Fifteenth day.—Morning: Pulse 90; respiration 18; temperature 99·8°—Evening: Pulse 92; respiration 23; temperature 100·4°. Is free from pain; no nausea or vomiting; bowels open once, the evacuation loose and fæcal.

Seventeenth day.—Morning: Pulse 112; respiration 20; temperature 98·8°.—Evening: Pulse 90; respiration 24; temperature 98·8°—Sleeps well; is free from pain; no vomiting; feels hungry.

Eighteenth day.—Morning: Pulse 84; respiration 24; temperature 98·5°.—Evening: Pulse 86; respiration 30; temperature 99·3°. She is sweating freely; the pupils are widely dilated; the tongue is moist, but furred. Bowels open; the motion solid, but pale.

Twenty-first day.—Morning: Pulse 81; respiration 21; temperature 98°.—Evening: Pulse 75; respiration 21; temperature 98°. Is quite free from pain, and feels hungry. Allowed to sit up for an hour in the evening, and to have fish and pudding. The opium to be discontinued. Ordered to take an ounce of citrate of iron and ammonia thrice daily.

Twenty-second day.—Pulse 90; respiration 21; temperature 97·6°. Has been up again to-day; feels perfectly well; appetite good. Bowels open once; the evacuation healthy.

A few days later she took meat, without suffering any return of the pain; and shortly afterwards left the hospital, feeling quite well.

CHARING-CROSS HOSPITAL.

A CASE OF PSORIASIS OF TWENTY YEARS' STANDING TREATED WITH IODIDE OF POTASSIUM; RECOVERY.

(Under the care of Dr. Pollock.)

The following is a noteworthy instance of recovery, during a course of large and increasing doses of iodide of potassium, from psoriasis of long standing. It also suggests the interesting question whether an extensive cutaneous affection due to, or modified by, syphilitic contagion, would run so long a course without the development of other symptoms characteristic of the syphilitic cachexia. In favor of the hypothesis of a specific origin are: the color of the eruption, which Dr. Pollock found to be a highly characteristic copper hue, and the striking result achieved by large doses of iodide of potassium. The duration of the eruption, its disposition over the body, and the apparently sincere assurance of the patient that she could not by any possibility have contracted syphilis, may be quoted against it. While admitting that the denials of patients with regard to the contraction of syphilis should be received with great caution, Dr. Pollock was inclined to believe that, in the present instance, the contagion might have been received from what is, in his opinion, a not unfrequent source—namely, some unclean place of accommodation.

M. H——, aged forty-three, was admitted suffering from psoriasis, which had existed, she affirmed, for the last twenty years. The eruption was scattered all over her, in the form known as psoriasis guttata, and was especially thick on the scalp. The dorsal surface of each foot was thickly covered, the spots having there coalesced into one mass of scaly scab. This had also occurred over the lower half of the abdomen. The skin was crack and fissured in places, especially on the calf of one leg and on the knuckles of both hands. The eruption was dry and scaly, and of a very strongly marked coppery hue.

The patient was a single woman, who had never borne children, and strongly denied ever having run the risk of contracting syphilis. There was no history of psoriasis in other members of her family. Her general health was pretty good, but menstruation had not been regular, and she suffered from slight leucorrhœa. She was a sallow-looking woman, with thin, wiry hair, and slightly deaf; the left tonsil was much enlarged, and she complained of a dryness and soreness all over her mouth, the mucous membrane of which had a perfectly natural appearance. No history could be elicited of primary syphilitic mischief, nor of any sore-throat or affection of the bones. Three years ago, after a voyage to America, she had lost her voice, once for thirteen days. She thought she had caught cold on board ship. Since the rash first made its appearance twenty years ago, it had sometimes been better, sometimes worse, but had never been so bad as then. It never itched, and had been painful for the last five months only. The pain was severe, and of a burning character; the skin was very tender and sore to the touch, and she has not been able to wear boots since November last. Her pulse was 92, temperature 99° F. The bowels were regular, and the tongue clean.

About fourteen years ago she had been under homœopathic treatment for some time, without any particular result. After that she went to the Skin Hospital at Blackfriars, and remained a patient there from July to December, 1859, during which time she became a little better. While in America three years ago she suffered from an attack of rheumatism, for which she underwent treatment. She had been to the Skin Hospital again lately, but became so much worse that at last she applied at Charing-cross Hospital.

In spite of the absence of any evidence of syphilitic contamination, the patient was put upon ten grains of iodide of potassium, three times a day, with carbonate of ammonia and decoction of bark, and a lotion consisting of equal parts of glycerine and water was kept constantly applied to the parts most affected, and occasionally used all over the body.

Third day.—Patient feels better. Dose of iodide of potassium increased to fifteen grains.

Seventh day.—Menstruation commenced yesterterday. She is not feeling very well. The tongue is clean; pulse 104; temperature 99°. The rash looks paler, and her fingers, which were very sore and cracked, are now quite well; but she complains that her feet burned a good deal last night.

Fourteenth day.—The same treatment has been carried on, and the patient is gradually improving. Has not felt so well for a long time.

Sixteenth day.—She is still improving, but complains of the burning pain in the feet. The iodide increased to twenty grains three times a day, and ten grains of bicarbonate of potash added to each dose of the mixture.

Twenty-second day.—Patient says she is very much better. Iodide increased to thirty grains.

Twenty-fourth day.—She is not quite so well. A crop of small pustules has come out on the chest and neck. To continue with the medicine.

Twenty-seventh day.—The patient is much better again; she "hardly knows herself." Tongue clean, bowels regular. Rash much faded. Abdomen and feet free from scabs. Repeat medicines.

Fortieth day. The rash has almost disappeared. The patient feels quite well. To leave off all medicine.

Fiftieth day.—There remains now no rash at all. She left the hospital on the fifty-fifth day, promising to apply again if there occurred any return of the eruption.

The patient has presented herself since leaving the hospital, and been found quite free from eruption.

UNIVERSITY COLLEGE HOSPITAL.

OPERATION FOR THE CURE OF PROLAPSUS UTERI.

(By Dr. Graily Hewitt.)

Dr. Graily Hewitt's operation for the cure of prolapsus uteri consists in removing from the perineal end of the posterior wall of the vagina a triangular portion of mucous membrane, of which the apex is towards the uterus, and the base at the posterior commissure of the vulva. In the present instance, an operation performed two months previously had succeeded so far as regarded the vaginal mucous membrane, but, union having failed to take place between the edges of the base of the triangular wound, the constriction of the vaginal orifice, which was the main object in view, had not been effected. Dr. Hewitt pared the edges of the posterior half of the orifice, and brought them together by means of two deep interrupted sutures of strong metal wire, and three superficial sutures of finer wire inserted within the deep ones. The deep sutures were secured by means of a small apparatus which Dr. Hewitt calls a "bead." It is made of ebonite, is gourd-shaped, and consists of a body and an expanding neck, of which the former is as large as a full-sized pea. When the suture is inserted a bead is strung on at either end, with the neck outwards; and while it is pressed against the labium with one hand with the proper amount of force, it is fixed in position by winding round its neck, with the other, the projecting extremity of the wire suture. Dr. Graily Hewitt claims for the beads that, their action being more defined and local than that of portions of bougie, they have not the same tendency to maintain, in the included lips of the wound, a state of congestion which is unfavorable to healing, and has in some instances produced sloughing.

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Provincial Hospital Reports.

HUNTINGDON COUNTY HOSPITAL.

A CASE OF TETANUS TREATED WITH NITRITE OF AMYL AND CHLORAL HYDRATE.

(Under the care of Mr. Foster.)

In Mr. Foster's practice at the Huntingdon Hospital there has already occurred one case of successful treatment of tetanus with nitrite of amyl. In the following case, for the notes of which we are indebted to Mr. J. Bower Wilson, the house-surgeon, large doses of chloral also were administered.

John C——, a sheperd, aged forty, was admitted on Jan. 15th, 1871. Three weeks previously he had received a lacerated wound on the back of his right hand. Five days before admission he thought he had caught cold, and felt stiff, more especially about the lower jaw and the neck. On the following day he could not masticate. On admission there were well marked symptoms of tetanus in the jaws and muscles of deglutition; the characteristic spasm became aggravated every five minutes, and also at every attempt to move or to swallow. The nitrite of amyl was administered in five-drop doses, which were inhaled on the onset of the spasms as they successively occurred. Two scruples of hydrate of chloral were given shortly after admission in three tablespoonfuls of water. Half that dose was ordered to be repeated every six hours. Beef-tea, milk, and eggs were to be given *ad libitum*, and three ounces of brandy daily. On the first night he slept from 11 P.M. to 3 A.M. The treatment just indicated was continued with slight variation from day to day, and the patient gradually improved. The nitrite of amyl and the chloral were discontinued fourteen days after admission. The greatest amount of chloral was taken during the first twenty-four hours, when a hundred grains were administered; of the nitrite of amyl three drachms were inhaled in fourteen days. On the twenty-second day the patient left his bed, and on the forty-eighth day he was discharged well.

Medical Societies.

JULY—AUGUST.

CLINICAL SOCIETY OF LONDON.

DR. W. W. GULL, President, in the Chair.

DR. GREENHOW read "A Case of Diphtherial Paralysis treated with Faradism." The patient, a female, aged twenty-six, one week after subsidence of diphtheria, showed symptoms of paralysis, which took the following order: palsy of velum palati, vision troublous, numbness of the left and afterwards of the right lower extremity, deadness and loss of power in fingers, incontinence of urine, vomiting, occasional vertigo, palpitation and dyspnœa, with constriction feeling in the chest and abdomen; then loss of power in lower extremities, and partial deafness. On admission, her legs were emaciated, and she was only able to stand imperfectly. She could use her hands but little. There was some tenderness, on pressure, over the left sciatic notch. There was anæsthesia of the legs, and the electro-muscular contractility was impaired. She was treated by the application of faradism alone, and in twelve days she could dress herself. In twenty-one days the normal electrical reaction was established in the legs, and she could walk a little. On March 14th, two months after admission, she left the hospital well. Dr. Greenhow, whilst acknowledging that the large majority of cases of this kind get well under any kind of tonic treatment, entertained no doubt that the treatment here adopted expediated the recovery. He did not attempt to determine the precise pathological cause of the disease, but suggested the occasional existence of neuritis as worthy of attentive consideration in this relation.

Dr. Althaus said that the pathology of the disease was very obscure, and that neuritis often existed. He inquired if the cervical sympathetic had been examined, and said that the results of pressure on the sterno-mastoid and of a galvanic current through the cervical sympathetic were most marked, and that swelling of submaxillary glands was sometimes a symptom of incipient paralysis.

Dr. Hughlings Jackson asked Dr. Greenhow if he had been able to determine anything as to the kind of defect of hearing in his patient, and if he had grounds for inferring that the ear affection was a symptom of the same order as the eye affection—if it could be attributed to palsy of small muscles within the tympanum. He (Dr. Jackson) had heard of defect of hearing in but one case of diptheritic paralysis; the patient, a well-educated medical man, said that the defect was very trivial, but that it was enough to "render music unintelligible." There was seemingly in this case a loss of accomodation, so to speak, for successions of sounds. Dr. Jackson particularly wished to ask Dr. Greenhow if his very large experience enabled him to say that a slight degree of deafness occasionally occurred as one symptom of the series in diphtheritic paralysis, and, if so, in what order it occurred.

Dr. Buzzard suggested that the occasional occurrence of paralysis after diphtheria affecting, not the throat, but the conjunctiva and other remote parts of the body, militates against the view taken by Remak and others, that the superior cervical ganglion of the sympathetic, from its proximity to the pharynx, is the seat of a change which gives rise to the various symptoms of paralysis.

Dr. Wilks had seen cases in which genuine paralysis existed, though the throat was almost imperceptibly affected.

The President said that, as fatal cases occurred, it was well worth while to obtain pathological experiences of the disease, and that, according to his own knowledge, the examination of the cord was far more valuable when it was fresh than when it was hardened in spirit.

Dr. Anstie asked Dr. Greenhow what view he took of the causation of the neuritis, which he considered had occurred in this case. Did he think that in diphtheria the whole mischief radiated from the spinal cord, or did he think that the paralysis was the consequence of a neuritis migrans (comparable to that described in the very interesting paper of Leyden on Reflex Paralysis) passing inwards to the cord from the local throat affection, and causing a more or less diffused myelitis, which exhibited itself in paralysis and pain of the various nerves?

Dr. Greenhow, in replying, said that he had formed no opinion as to the pathology of the disease; that there was tenderness along the course of the cervical sympathetic; that hearing, as far as he knew, was not sensibly affected; and that he had no experience of diphtherial paralysis in other parts of the body in the absence of throat affection. He suggested the neuritis theory to elicit discussion. Paralysis of the upper occurred before that of the lower extremities, and in these cases the pulse fell from 120 or 100 to 40 in a very short space of time.

Dr. Greenhow then read for Dr. Henry Thompson notes of a case of Diabetes treated with opium. The patient, aged thirty-five, exhibited well-marked symptoms of diabetes. Eighteen months before admission into the Middlesex Hospital he began to pass large quantities of urine, and, during the last six months, his lips and teeth stuck together in the morning, and a viscid secretion exuded from the roof of his mouth. His tongue began to darken, and eventually became black. Seven or eight weeks before admission he perceived a peculiar saccharine taste in his mouth, and his sight grew dim. When admitted, he had a densely-coated blackish tongue, feeble gait, and desponding aspect. Passed eight pints and a half of urine in the twenty-four hours, of specific gravity 1042·5, the total amount of sugar being 6·095 grains. He had persistent headache, pains in the loins, intense thirst, ravenous appetite, occasional hæmoptysis, night-sweats, sponginess of the gums, and looseness of the teeth. The patient was treated with large and repeated doses of opium for six weeks, given in the compound soap pill, the solution of morphia, and Battley's solution, until the daily quantity amounted to twelve or fourteen grains, when it was discontinued on account of intense headache. The opium treatment resulted in a diminution of the flow of urine and the amount of sugar, but no change occurred in the specific gravity or in the general symptoms until a fortnight after the opium was abandoned. He then improved, and lost the distinctive diabetic expression. Dr. Thompson hence concluded that the opium treatment was not beneficial, and ascribed the improvement to other remedies, to a well-regulated diet, and to favorable sanitary conditions.

Dr. Greenhow remarked that the case came into the Middlesex Hospital shortly after the opium plan of treatment was introduced by Dr. Pavy.

Dr. Pavy regretted that more precise particulars had not been given as to the actual quantity of opium prescribed, or the quantity of urine eliminated, and remarked that the examination of the patient should, in all these cases, be conducted with very great care, as the least transgression in diet influenced health to a very great extent. Patients suffering from diabetes exhibited a great tolerance of opium, and opium controls the disease by diminishing thirst, as well as the quantity of water and sugar eliminated. Codia acts altogether better than opium, and coma is the natural termination of diabetes.

Mr. Warrington Haward exhibited a patient on whom M. Reverdin's operation of skin-grafting was first performed in England by Mr. Pollock at St. George's Hospital. The sore operated upon was caused by a severe burn, was originally about fourteen inches by five inches, and was situated on the right buttock and outer aspect of right thigh. The case has been under treatment for a very long time, but has made a good recovery, and the extension of the leg is almost perfect.

Mr. Lawson remarked that if ulcers give way after the operation, the skin transplanted always keeps its ground.

Mr. Cooper Forster said that it was now his practice at Guy's Hospital to take the skin from a recently amputated limb.

Mr. Thomas Smith said that this plan was also frequently adopted at St. Bartholomew's.

Mr. Callender believed that the tendency of growth of the transplanted pieces was centripetal rather than centrifugal, and that hence in extensive ulcerations the pieces should be placed round the circumference rather than towards the centre of the sore.

The President remarked that it might be worth while to pay some attention to the constitution of patients from whom the skin was taken.

Mr. Cooper Forster read notes of a case of Naso-pharyngeal Polypus. The subject was nineteen years of age, and had a large growth filling up the left nostril, firm, fleshy, and fibrous, and covered with mucous membrane. The right nostril was not much interfered with; there was no swelling of the face or fulness of the palate, nor any projection in the throat. Chloroform was given, and a wire snare put round the growth, which broke off, and bled profusely. Mr. Forster then made a further examination, and, having passed his finger up the nostril, found an enormous growth, which could not be circumscribed, but large portions of which he tore away with forceps. Four days after the operation, the patient suddenly became unconscious; the right half of his face was numb, and, though he rallied, he was never able to speak except to say "too too." The temperature rose to 102° F. He had three convulsive fits on the seventh day, and became totally unconscious, and died twelve days after the operation. The post-mortem examination showed general arachnitis, and sloughing of the brain about Broca's convolution. That portion of the growth which had not been removed occupied the left side of the external base of the skull, and filled the space between the greater and lesser wings of the sphenoid, the orbital plate of the frontal, and the cribriform plate of the ethmoid. It had extended from the nasal fosa by way of the sphenoidal fissure into the back of the orbit, but without damaging the optic nerve. The cribriform plate of the ethmoid was broken, and at the back part there was a small opening about a quarter of an inch in diameter, and a fracture extending forwards from the opening. Microscopic examination showed the growth to consist of small fusiform cells and stellate connective tissue. Mr. Forster, in alluding to the advisability of bringing forward for discussion unsuccessful as well as successful cases, remarked that though it might possibly have been advisable not to have proceeded further in the operation when the true character of the growth was apparent, yet, under any circumstances, the life of the patient could not possibly have been much prolonged. He submitted to the Society four reasons as to the brain complication:—1. As to the idea offered that the forceps might have broken the bone of the skull in the act of operating, Mr. Forster said the instrument used was a pair of strong bone forceps, the length of which by measurement precluded any possibility of this accident. 2. The growth might have been adherent to the portion of bone broken and at the seat of the small opening, and this was the most probable explanation. 3. The growth might have already destroyed the bone and reached the membranes, so that the brain was exposed in the course of the operation. 4. The mischief might have extended by contiguity from the periosteum to the membranes. Mr. Forster also called attention to the inutility of treatment generally when the brain became involved.

With reference to the circumstance that the patient was treated with a scruple of calomel at some time after the operation, Dr. Anstie asked the President his opinion as to mercury in non-syphilitic diseases of the brain.

The President remarked that Mr. Forster's case was one of great medical as well as surgical interest, and that unless there was some faith in the so-called antiphlogistic action of mercury, he did not know why the drug should have been given in this case.

Mr. Lawson had seen several fibroid growths from the base of the skull with which, when removed, portions of cerebral matter came away.

Mr. Thomas Smith thought that the safer procedure in a case such as that described was to slit up the nostril, and cut rather than tear away the growth.

Mr. Spencer Watson asked Mr. Forster if any rhinoscopic examination had been made, and thought that the post-mortem appearances should have indicated protrusion of the eyeball.

Mr. Arnott made brief remarks on the importance of correct diagnosis.

Dr. Silver pointed out that Mr. Forster had in his paper drawn a conclusion directly the opposite of that warranted by the facts. It was stated that the patient had been completely aphasic, and after death that Broca's convolution had been found very greatly softened. But it was also stated that the day before he died the patient could speak so as to be generally intelligible. The correct conclusion would surely be, therefore, that integrity of Broca's convolution was not essential to speech, instead of being the site of that faculty.

Mr. Forster, in reply, said that the rhinoscope was not used, that he disagreed with Mr. Smith as to the use of the knife in such cases, that he used calomel as a convenient purgative, but was not responsible for the treatment latterly, and that diagnosis was the point of the question to which he wished to direct the attention of the Society.

Dr. Buzzard read notes of a "Case of Cervico-brachial Neuralgia treated with the constant current." The patient, a woman aged sixty-five, had suffered for three months from paroxysms of agonising pain in the neck and right arm, which attacked her several times every hour, night and day, deprived her of rest, and rendered her arm useless. The neuralgia had followed seizures which sufficiently indicated its central origin, and this, coupled with the age of the patient, and the degeneration of her tissues, rendered its cure in the highest degree improbable. Applications of sedative character had been useless in relieving her suffering. A constant current derived from ten cells (increased afterwards to fifteen cells) of a Weiss's battery was applied from time to time between the cervical vertebræ and the hand, with the effect of producing remarkable relief to her pain, insomuch that at one time she thought herself cured. Under the influence of this treatment the patient was enabled to sew, and to cut her food with the right hand, which had previously been so helpless that she was forced to lift it with the other. With the view of testing the effects of the application, it had been intermitted on several occasions, and other remedies, as blisters, sedatives, and tonics had been employed, but these failed in preventing the paroxysms of pain. Summing up the results of treatment, Dr. Buzzard said that out of sixteen applications of the constant current, ten had been followed by very great and well-marked relief, two by moderate relief, and four by very slight relief. Dr. Buzzard brought the case forward not as one of cure of neuralgia, but as a good example of the effects of the constant current in relieving pain, and he drew attention to the process because he believed it was as yet very little employed for this purpose in this country, although, as was well known, its efficacy had been perfectly recognised and insisted upon abroad for many years past.

Dr. Anstie offered, as a pendant to Dr. Buzzard's case, two examples of the treatment of neuralgia with the constant current, one successful, the other unsuccessful. The first case was that of a married woman aged forty-eight, born of neurotic family, and herself the subject of migraine in youth, in whom the change of life had passed over quietly some years before. She was attacked with severe and well-defined right neuralgia in the cervico-brachialis. Treatment with every kind of internal remedy and internal application was tried for two months, with none but the most trifling and temporary amelioration. She then tried country air, without medicine, for one month, but returned to town worse than ever. The constant current from ten (afterwards increased to fifteen) cells of Weiss's battery was applied daily for twenty-four days; the positive pole being applied, alternately, on the various foci of pain, the negative pole being applied by the right side of the three lower cervical vertebræ. The pain was at once diminished, and ceased altogether at the end of thirteen days; and a secondary anæsthesia of the skin, with secondary paralysis of the deltoid and trapezius, were removed at the end of the twenty-four days' treatment. The cure was found persistent six weeks later. The other case was that of a hard-worked and ill-fed unmarried needlewoman, aged thirty, who suffered from double cervico-occipital neuralgia. A variety of internal remedies, and also blistering, having failed to produce any benefit, the daily use of the constant current was tried for sixteen days. No good was effected by the treatment. Dr. Anstie remarked that the effect of the constant current in neuralgia was very remarkable, but that there were, as yet, some unexplained anomalies in its action. In the large majority of cases it acted as a palliative most strikingly. In a not considerable number of cases it appeared to cure the disease absolutely. But in a few examples, like the second case he had read, without any discoverable reason it failed to produce any good results. As a general rule it was far less effective in the neuralgias of old persons, with degenerated tisssues, than in younger subjects. But occasionally even a young subject, like his second patient, quite failed to derive benefit from it.

Dr. Duffin endorsed the remarks of the last speaker as to the benefit to be derived by treatment with the constant current; and spoke of a case of trifacial tic of two years' standing, which was treated with the current of a battery of six and afterwards of ten cells. Sixteen or eighteen applications were made; the patient was then free from pain, and remained so for three months, when a relapse occurred; but the current was reapplied, and again gave relief. The patient, however, was now suffering from partial paralysis, and had other symptoms of organic disease.

Dr. Althaus said that there was nothing novel in the plan of treatment; but sometimes the central, sometimes the peripheral, application is the better; that all good derived is due to the positive pole; that sometimes the negative pole does harm, and should in all cases be as far removed from the seat of mischief as possible, and that the use of the galvanic-puncture was often proper in such cases.

The President said that there appeared to be a want of precision in the discussion of these cases, that of the three cases quoted one was relieved by treatment and two were not, that many years ago metallic tractors were said to have done good, that according to his own belief the constant current did good only when it did no harm, and that the influence of electricity on pain should be very exactly and carefully studied.

Dr. Greenhow and Mr. Kesteven suggested the appointment of a committee to report upon the subject.

Dr. Anstie said, in reply that he would gladly second the proposition for a committee, on the express understanding however, that it must contain a certain number of persons who did not as yet believe in the efficacy of electrical treatment. It was obvious that this would be quite necessary, after the disparaging remarks which the President had made. Those remarks had filled him with astonishment, and he must (with all deference to Dr. Gull's high authority on the subject of nervous disease) protest in the strongest manner against the attempt to treat the constant current as if it were a remedy of the same empirical and doubtful character as Perkin's metallic tractors. After all that had been done during recent years in Germany, it was really surprising to hear the unanimous scientific voice of that country on this subject set aside in such a summary manner, on the basis of researches which were made twenty years ago.

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OBSTETRICAL SOCIETY OF LONDON.

Dr. Braxton Hicks, F.R.S., President, in the Chair.

Dr. Graily Hewitt exhibited a child whose forearm had probably undergone amputation in utero.

Dr. Wiltshire said it would be interesting to know what became of the parts amputated. Sir James Simpson and others had figured cases in which nearly complete absorption had taken place.

Dr. Barnes observed that it was not often strangulation by the umbilical cord, but by a string of false membrane that caused amputation. He had a drawing of a case in which amputation was in progress. In the case exhibited there was, as in most instances, a budding of a new limb from the stump, analogous to what was observed in some of the lower animals which had lost a limb. He regarded this budding, with the sign of cicatrix, as proof of amputation in the early stage of development.

Mr. Scott thought that if such cases occurred they were the exception. He knew a family in which the grandfather and the grandson had both forearms wanting. As the deficiency existed in both arms symmetrically it would be impossible to conceive that it could have occurred from any accidental constriction in utero.

Dr. Brunton showed a wax model of a successful vaccination performed with the lymph from a secondary vaccination.

Mr. Eastes considered the most obvious criticism upon the case to be that, although occasionally lymph from a secondary vaccination might produce a good vesicle, still it could in general be by no means depended upon for that purpose.

Mr. Wilkinson stated that he had on several occasions vaccinated with the lymph from a revaccination.

Dr. Wynn Williams hoped none of the Fellows would be tempted by the apparent success to follow the practice. It would be interesting to know whether vaccination performed from a secondary vaccination was any protection against small-pox.

The President thought that if anyone was exposed to the contagion suddenly, and only secondary lymph could be obtained, it should be used; but he held that the person should, as soon as convenient, be revaccinated with primary lymph.

Mr. Scott had, from necessity, vaccinated a gentleman with secondary lymph, producing perfect vesicles. As he was much exposed to contagion, Mr. Scott revaccinated him in three weeks with primary lymph, and again vesication took place, but less perfectly.

Dr. Graily Hewitt then read a paper entitled "The Sickness of Pregnancy: its Cause and Treatment." The author said that the sickness observed in pregnancy has generally been accepted as an inevitable circumstance. The causes of its occasional inveteracy and even danger have never been satisfactorily made out. The treatment of these latter cases has not been conducted on any one principle. Yet it must be evident that an analogous cause must be in operation in the slight cases and in the more severe forms. The present state of professional opinion may be represented in the statement that it is due to the distending effect of the increasing contents of the uterus, exciting thereby in a reflex manner the act of vomiting. The author, accepting this view, proceeds to propound the theory that the existence of flexions of the uterus in various degrees of intensity is the prime factor in giving rise to the vomiting of pregnancy in by far the majority of instances, inasmuch as it offers an additional hindrance to the proper expansion of the uterus, and gives rise mechanically to such pressure on the sensitive uterine tissue at the seat of flexion as results, in most cases, in this particular reflex irritation. This theory as to the cause of the vomiting of pregnancy will account for the mild and severe forms of the symptoms. The author was led to this conclusion by observation of the close connexion between obstinate nausea and vomiting and flexion associated with distension of the uterus in the *non*-gravid state, as in cases of dysmenorrhœa produced by flexion. Latterly he had found himself applying this explanation to the gravid cases, and having tested the matter by observation for some little time past, the clinical facts which he had accumulated appeared very completely to bear out the general truth of the theory now enunciated. An anteflexed gravid uterus is most commonly the condition found to be present, the anteflexion existing before the pregnancy supervenes; retroflexion of the gravid uterus much less commonly, because the retroflexed uterus is less liable to become impregnated than the anteflexed organ. The very obstinate cases of sickness are observed generally at the second to the fourth month, when the uterus is sometimes found tightly fixed in the pelvis and unable to escape from it; how far the explanation will apply to cases where the uterus is more advanced in pregnancy the author does not say, not having had cases to test the matter by. The slight cases, when the sickness is limited to the time of rising from bed, are explained by the action of gravity in this erect posture suddenly bending the uterus on itself to a slight extent. Undoubtedly whatever tends to hinder the expansion of the uterus may equally induce sickness; thus some cases may not be accounted for by the theory now put forward. The results of treatment, based on the foregoing conclusions, and consisting in measures to restore the organ to its proper shape, have been found very successful in the author's experience; sometimes maintenance of the horizontal position alone sufficing, in other cases mechanical supports elevating the fundus anteriorly or posteriorly, according to circumstances, being used for the purpose. The author is quite satisfied of the value of the theory as a basis for practice. He believes that the pressure on the nerves of the uterus at the seat of the bend is the exciting agent; this pressure usually leads to congestion of the uterus above and below, and possibly other secondary results.

Dr. Barnes observed that there had been many theories advanced as to the cause of vomiting in pregnancy. Displacement of the uterus was an old theory. He was, however, in a position to state, from many precise observations, that flexions of the gravid uterus were often present without any unusual degree of vomiting, and that most obstinate vomiting occurred where there was no flexion. The theory of the stretching of the uterine fibre had been most distinctly set forth by the celebrated Bretoneau, of Tours. Many facts concurred in proving its truth. Growth that kept pace with the growth of the contents of the uterus did not cause vomiting, but it was caused whenever the fibre was stretched rapidly, the distending contents outrunning the accommodating growth of the uterus. When vomiting had once become excessive another element entered into the case. The defective nutrition was attended by impoverishment of the blood, and the blood was further degraded by the absorption of noxious material from the system; concurrently with this the habit of vomiting had induced a morbidly irritable state of the spinal cord, so that it readily responded to the slightest peripheral or emotional excitation.

Dr. Tilt denied that vomiting was any more caused by flexions of the gravid than by displacement of the unimpregnated uterus. Uncomplicated uterine malpositions had no symptoms. In the case referred to in the paper the cure was attributed to rest in the horizontal posture, a remedy of general use, recommending itself on other grounds than the problematic power to rectify a flexed gravid womb. Dr. Tilt thought that the proposed practice of restraining the sickness of pregnancy by the use of pessaries likely to lead to disastrous results.

Dr. Wynn Williams thought the sickness might be aggravated by the unequal distension which would naturally result from flexions of the uterus. In the latter months of pregnancy the sickness was due to an entirely different cause, generally to pressure on the abdominal viscera, more especially the liver.

Dr. Playfair confessed to have heard Dr. Hewitt's proposal to apply mechanical supports to the gravid uterus with some alarm. Some points in the natural history of the sickness of pregnancy militated strongly against Dr. Hewitt's theory. Dr. Playfair did not doubt that some degree of sickness was a perfectly healthy phenomenon in pregnancy. Sickness was much more severe as a rule in first pregnancies; flexions, on the other hand, were most common in multiparæ. Again, it was by no means rare for sickness to continue beyond the fourth month, and then flexions could but very rarely exist.

Dr. Wiltshire said he had been requested by Dr. Buyko, who sat by him, to say that the hypothesis brought forward by Dr. Hewitt had also been propounded by Professor Krassovsky, of St. Petersburg. Dr. Wiltshire thought that flexions of the uterus were neither the only, nor the most common, cause of the sickness of pregnancy.

Dr. Snow Beck said that anteversion and retroversion were not uncommon, and were one of the chief causes of sterility. When, however, impregnation occurred, sickness was not more frequent than in other cases where no deviation had been present. Much stress had been laid on the anteversion of the pregnant uterus, but he was unable to see anything to prevent the uterus rising in the abdomen in the usual way. As regards the imaginary stretching and thinning of the uterine tissue at the seat of version, the constriction of the bloodvessels and consequent congestion, and the assumed pressure on the nerves, he gave all these a direct denial. Further, the nerves at the seat of flexion were not those concerned in the production of sickness, for it was a matter of every-day experience that affections of the fundus of the uterus were those so generally attended with sickness.

The President observed that his experience did not coincide with Dr. Hewitt's. He believed that tension of the uterus was the chief cause, as shown by the immediate relief afforded when the membranes were ruptured in some cases; but he certainly thought, with the author of the paper, that the retro- and anteflexed condition favored the pressure. The act of vomiting probably tended to increase the displacement.

Mr. Scott said that in the most severe case which he remembered, the sickness continued to between the sixth and seventh month, and in which, therefore, there could be no question of any flexion being a cause. He had frequently seen cases of retroflexion with pregnancy without sickness. Mr. Scott thought acute anteflexion of the uterus was an absolute cause of sterility, whereas pregnancy occurred not unfrequently in severe cases of retroflexion.

In reply, Dr. Graily Hewitt thanked the Society for the criticisms on his paper. It must be evident, on necessary mechanical principles, that an organ like the uterus could not be acutely bent at the cervix without compression of its tissues on the concave side of the bend. He was not aware that the theory had been advanced in this shape by any previous author. With Dr. Barnes, he believed, and had stated as much, that the distension of the uterus was the cause, but whether it operated by compression of the nerves or by stretching of the muscular fibres was a question. He himself believed the former the true explanation. He could say, in reply to Dr. Tilt, that he had actually carried his own recommendations into practice to their full extent. He, however, recommended caution in the use of pessaries. The best adapted pessary for the anteflexed cases was the globular air pessary. The fact that sickness was most common in primiparæ was quite in conformity with the theory advanced. It must, however, be recollected that he did not contend that every case of sickness would be found to be a case of flexion, nor would every case of flexion be attended with sickness.

MEDICAL SOCIETY OF LONDON.

Dr. Andrew Clark, President, in the Chair.

The President showed a case of Peribronchial Phthisis. He first ran over the current notions relative to the pathology of "phthisis," and proceeded to point out the distinctive characters of fibroid phthisis as noticed during long observation in the particular case brought before the Society. The patient was a lad nineteen years of age, who had suffered from pleuro-pneumonia, but never fully recovered, bronchitis supervening after a while, and subsequently the symptoms of breaking up of the lung. The left side contracted; the vocal thrill and bronchophony decreasing, all fever disappeared, and the respiration and pulse became normal. The microscope detected small particles of areolar tissue in the sputa, showing the existence of a small cavity in a quiescent state. The consolidation and cavity followed pleuropneumonia. The corpuscular stuff left after the subsidence of the bronchitis having been converted into a fibroid mass, the patient gradually returned to health with no evidence of aught but consolidation and contraction. The prognosis in such cases is favorable.

Dr. Crisp asked if hereditary tendency was observed in regard to fibroid phthisis. He thought he had observed the fact

Mr. Weeden Cooke referred to the differences, as seen in the testicle, between the fibroid deposit following simple inflammation, a local affair, and tuberculous disease of the same organ, a constitutional affection.

Dr. Sansom said he did not think that there was a pleuritic phthisis; but that phthisis took its origin in inflammation of the lung more frequently than is generally supposed.

Drs. Broadbent and Thorowgood agreed with the President in his views.

Dr. Andrew Clark, in reply, said he could not make out any hereditary tendency in regard of fibroid phthisis, but only a history of lung weakness. The prognosis varies in the different kinds of phthisis; in tubercular phthisis, if no secondary (pneumonic) inflammation occurs, it is favorable. In pneumonic phthisis the exudation sometimes takes place extensively, the lung breaks up, and secondary deposits occur in the other lung. The prognosis is therefore grave. But it is favorable in pleuro-phthisis (fibroid), especially if albumen be absent from the urine.

Dr. Meymott Tidy read a paper on "The Estimation of Sugar in Diabetic Urine." After criticising some of the ordinary tests, he suggested a modification of Vogel's. A series of solutions of four ounces each were placed on the table, containing different but known quantities of sugar, but in each the same quantity of alkali. They ranged from 0·25 gr. of sugar to 2·0 gr., and the differences in tint were marked. For experiment it was desirable to make a potash solution, containing 1 gr. of potash in every septem of water (7 gr.), and to carry out the test 10 septems of the urine were taken; to this were added 10 septems of the solution of caustic potash. This solution was to be boiled for one minute, and then diluted until the tint approached that of either of the standard solutions. If the tint was more than that indicated by 2 gr. standard bottle, it must be halved and diluted. An experiment made gave 1·25 gr. in 10 septems, = 12·5 in 100 septems, = 15·2 gr. in ·700 gr., = 17·86 per 1000 gr. of urine, or about 8·3 per oz. Dr. Tidy proposed to get rid of the standard solutions by the use of tinted gelatine slips.

Mr. Thomas Bond showed an interesting specimen of Urinary Calculus that occurred in the practice of his uncle, Dr. Hearne of Southampton, who, although unconnected with any hospital, has operated with much success, having had only one death in thirteen cases. The stone in question, a large oxalate-of-lime calculus, was removed from a man aged forty. The usual lateral operation was performed. The incision into the prostate was small (only the width of a medium sized knife), the opening being gradually dilated with the finger till the scoop (which is peculiar in being bent backwards) could be introduced by its side; the stone was easily caught between the scoop and the finger and extracted. The interesting points connected with the case are—first, the size of the stone, 3½ oz.; second, the fact that the man was able to do his work up to a few weeks previous to the operation with such a stone in his bladder for years; third, in its being a large oxalic-acid calculus, covered with lithic acid in a urate; fourth, the form of the scoop used.

The President remarked that the late John Crighton of Dundee had performed in his time more operations for stone than any other man, and had great success. His patients were seldom confined to bed. The scoop was used by him, and he also had a very long finger. Oxalates and urates often occurred together in the urine. The stone in the case before the Society was formed of oxalate of lime and soda.

Dr. Thorowgood then related some cases of Hæmitic Effusion, with Fetid Expectoration. The first case was that of a woman aged forty, who had been ill five weeks, and when seen at the end of that time there was dulness at the lower part of the right chest, ægophonic twang in the voice, and very distinct friction sound. The pulse was 80, and there was considerable debility. During the last week the cough had increased, and the expectoration had a rusty appearance and was very offensive. Bark and sulphuric acid were administered, and the case was considered to be one of subpleural abscess; which, by extending, might cause pneumothorax and hæmoptysis, or both. The patient was seen again ten days later with her regular attendant, the late Dr. Cregson, of Rotherhithe, and it was then found that three days before she had been in a state of complete collapse and prostration, during which time a most copious expectoration of pus had taken place; from this date gradual recovery set in, and when examined twelve months afterwards, some amount of dulness at the right base and bronchial respiration were the only morbid sounds noted.—The second case was that of a man who was in the Victoria Park Hospital, and who, with great debility and wasting, had most offensive expectoration, dulness of the left side, and cavernous breathing at some points; the heart was not displaced. The case was thought to be one of cavities of the left lung full of offensive pus, but a post-mortem examination showed the left pleura to be full of the most fetid matter, while extensive adhesion fixed the heart in its normal position, and so, by preventing its displacement, rendered the diagnosis obscure.—The third case was that of a man employed in business, who consulted the author in consequence of a cough, attended with a pinkish expectoration so exceedingly offensive as to render the room in which he was quite unbearable. He said he had been getting corpulent of late; his pulse was 104; breath short; tongue foul. Examination of the thorax disclosed some dulness at the right base, extending almost up to the level of the nipple. Nothing remarkable was noticed in the shape of the two sides. The breathing in the left side was loud and mixed with a few crepitations, while at the base crepitation was very marked. A few days later this man had two or three attacks of free hæmoptysis. Under the influence of the inhalation of carbolic acid vapor the fetor of the expectoration totally disappeared; and by taking opium at night, and creasote mixture in the daytime, the man mended so much as to pass from observation, the breathing at the right base having much improved: this was about the close of August. In October he had a return of the hæmoptysis, and shortly after the author was called in to see him at home (Jan. 22nd, 1871) together with his regular attendant. He was in bed, lying on his back, and said that on the Thursday previous, as he was walking, he felt intense sudden pain in the side. Examination showed great dulness at the right base, and a tinkling drop was heard after he had moved from his side over to his back. A few days later he died. On opening the thorax fetid gas escaped, and from the right thorax the author removed a chamber-vessel quite full of dark-colored matter of intense fetor; the right lung was found pressed back against the spine as a thin leathery skin, perfectly airless, and a sac containing pus appeared to have existed at about its lower base; the other lung was purple and congested. Dr. Thorowgood drew attention to the presence of a very fetid expectoration in these cases as a symptom of great prominence, and to the importance of recognising their real nature. He alluded to the frequency of cases in which pleuritic effusion was overlooked, and instanced a case where the presence of incessant vomiting, followed by convulsion, drew the attention of some most competent observers entirely to the *brain*, while the post-mortem examination showed subsequently that this organ was quite healthy, and that the case was a well-marked one of real diaphragmatic pleurisy of the left side, with effusion and copious deposit of lymph over the pleural surface of the diaphragm.

In the discussion that followed, Dr. Day, Dr. Simms, Dr. Douglas Powell, Dr. Wiltshire, Mr. De Méric, and Mr. Brudenell Carter took part; while the President, in thanking Dr. Thorowgood for his interesting cases, said he did not see any difficulty in diagnosing pleuritic effusion in the adult, if due regard was taken as to the displacement of organs and the usual signs of pleurisy; the dulness was of consequence, and especially the fact that it was movable, depending upon the position of the patient.

Editorial.

PUERPERAL FEVER.

He is a rarely happy practitioner to whom the subject of puerperal fever is not a matter of urgent and personal importance from time to time. There are medical men whose midwifery practice seems an unbroken piece of physiology, who can say that they go from year to year without witnessing death, or even serious illness, from the process of parturition. Most of us have known such men, and some of them are not famous for obstetric skill. But the rule is otherwise. Puerperal fever, notwithstanding the improvement in general and midwifery practice, is still too common. It still occasions a large annual mortality. It causes more pain and dissatisfaction to the practitioner than perhaps any other case which he encounters in practice. It is for these several reasons that we devote some attention to this subject. We are the more encouraged to do so in consideration of a most valuable paper on this disease by Dr. Hicks, which lies before us in full in the twelfth volume of the Transactions of the Obstetrical Society for the year 1870; and which was followed by a discussion, elicitating the opinion of the Society on this momentous question. We regard Dr. Hicks's paper as a most important addition to our knowledge, and a valuable guide to the formation of sounder views on the subject. Dr. Hicks's communication consists of a short report of eighty-nine cases, with remarks. The treatment is not given; and though a large proportion of them were fatal, there is an absence of any record of post-mortem appearances. The account of the cases is, for the most part, just such an account as could be given by a consulting physician called to see them once or more, and who was pursuing a certain classification of them. The cases occurred for the most part in private practice; they extend over a series of years, and are not selected further than is implied in the exclusion of cases occurring after serious manual or instrumental operations. The reason for this exclusion is obvious. Any undue laceration or bruising of parts might be supposed to be itself the cause of puerperal fever. Though the importance of this course of puerperal complications has probably been much over-rated, yet it is well excluded in an attempt to ascertain the more subtle kind of influences which determine the occurrence of puerperal fever in a lying-in woman.

We are all familiar with the innumerable classifications of puerperal fever of older authors. Inflammation was supposed to be the essential evil, and the cases were distinguished by the *locale* of the inflammation. Very different, and very much more wise and truthful we think, is the principle of classification adopted by Dr. Braxton Hicks. In the older classification distinctions turned upon type or symptoms. In Dr. Hicks's paper classification turns upon the supposed or ascertained cause. Now the defect of this system of classification is obvious and soon felt, for the cause cannot always be made out. But the classification is more useful, and is found to explain a larger number of cases than might have been expected. Thus, of Dr. Hick's 89 cases, no less than 68 were explicable by an ascertained or probable cause, the nature of which will appear immediately; 21 only were left to be grouped by themselves as not being traceable to any other cause than the mere puerperal condition itself, though even in these it would be wrong to assume that one or other of the causes which we shall see were so largely traceable in the 68 cases was not in operation.

But to come to the details of the classification itself. Dr. Hicks, we have said, divides his 89 cases into two groups—thus: Group I., *having an ascertained or probable cause;* and Group II., *in which the cause was uncertain.* Group I. is divided into the following classes: Class 1, Scarlet Fever, 37—(A) with the usual rash, 20; (B) without rash, 17, 15 of whom had been distinctly exposed to the fever, and 2 had probably been exposed. Class 2, Erysipelas, 6. Class 3, Diphtheria, 7. Class 4, Typhus or Typhoid, 2. Class 5, Decomposition of Uterine contents, 9. Class 6, Emanations from Sloughy Wound, 1. Class 7, from Puerperal Fever, 1. C[illegible]s 8, from Mania (?), 4. Class 9, Pyæmia from Sore Nipples, 1. Group II., *cause uncertain*, total 21—(A) symptoms appearing before or during labour, 4; (B) symptoms appearing about the third or fifth day, 17.

It will be seen at a glance how different the view of puerperal fever here suggested is from the view held by the older writers. It must be quite understood that Dr. Hicks does not pretend that his cases are fully and exhaustively reported. But, admitting this, there is evidence enough to convince us, if any such were still wanting, that zymotic poisons are a source of terrible danger to lying-in women, and give rise to the essential symptoms of puerperal fever; and that, of these poisons, conspicuously the most important is that of scarlatina. In 20 of the first group of cases the usual rash was observed; and in many instances the connexion of the patient with scarlet fever, either through her children or friends, or, we must add, her medical man, was only too plainly shown. It is not asserted that the manifestations of the disease were complete. The soreness of the throat was especially not a marked feature of the disease, but it did occur more or less in a certain proportion of the cases. But it seems impossible to doubt that a large proportion, if not all, of the 37 cases of the first group were really laboring under the effects of scarlet fever poisoning, modified by the puerperal condition, and probably by the fact that in a number of the cases the patients had previously had the disease. Only 6 cases seemed to be caused by the poison of erysipelas; 7 occurred in such association with diphtheria and with such diphtheric symptoms as to appear the result of diphtheric poisoning, and it is noticeable that in 2 of these diphtheric cases scarlet fever was present.

It is not denied, of course, that local poisoning of the system from the uterus may and does take place, and give rise to toxæmia and puerperal fever: 9 out of 89 cases are attributed to this cause, and it is probable that in many of the other cases blood-poisoning from the uterus aggravated the case and determined a fatal result. This cause of puerperal fever is always to be borne in mind, and special steps of prevention and treatment are to be taken. Among preventive measures, those which secure a thorough contraction of the uterus, as pressure and the administration of ergot, are the most important; and amongst remedial measures, cleansing and disinfecting injections of the vagina and uterus.

Without treating Dr. Hicks's facts as if they were an actual and exhaustive demonstration of the connexion between zymotic poisons and puerperal fever, we may receive them with thankfulness as a very suggestive contribution towards a sounder view of this most objectionable disease. We must look closely to the surroundings of our lying-in patients, with a view to rigidly keeping far away from them all zymotic and especially all scarlatinal poisons. And we must take one great therapeutical lesson out of the facts. We must no longer be deluded, by the presence of rigors and local pains, into the error of regarding puerperal fever as an inflammatory disease, and giving mercury and other fancied antiphlogistic remedies. Dr. Hicks's facts seem to us to make an end of the possibility of the continuance of this delusion. In the great majority of those cases of puerperal fever characterised by pyrexia, quick pulse, delirium in some degree, diarrhœa, and prostration, with or without some local pain, we have to do with blood-poisoning, for which no worse remedies than mercury and other depressing medicines could be prescribed. We do not include here, of course, cases of localised cellulitis, though even in them the use of mercury requires great caution. But the common forms of puerperal fever, we repeat, must, till the contrary is shown, be regarded either as cases of modified zymotic disease or of toxæmia from uterine sources; for the treatment of which a plentiful supply of fresh air, nourishment, and local cleansings, are the prime and indispensable requisites, and for which mercury is a poison.

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PHYSIOLOGICAL EFFECTS OF COMPRESSED AIR.

An interesting paper has just appeared in the Transactions of the American Otological Society, by Dr. Green, "On some of the Physiological Effects of a Short Exposure to a considerable increase of Atmospheric Pressure." The more important among recent observations on this subject possessing a scientific value with which we are acquainted have been those of Vivenot in 1860, Bucquoy in 1861, Lange in 1864, Panum in 1868, and G. v. Liebig in 1869. Vivenot's experiments were made in a properly-constructed iron chamber, large enough to contain ten or twelve people, into which air was driven by a small steam engine. The pressure was gradually increased for half an hour, then allowed to remain stationary for an hour, and then slowly allowed to resume its ordinary amount; the mean natural pressure being 770·87 mm.; the maximum to which the subjects of the experiment were submitted for the one hour was 925·04 mm., or about one-fifth higher. The general results obtained were that the pulse became slower by about ten beats per minute; the number of respirations was also reduced by about two in the same space of time. The secretion of the respiratory mucous membrane was diminished; but the urinary secretion was augmented. Bucquoy's investigations were pursued in the diving-bell employed in laying the foundations of the beautiful bridge at Kehl, which has recently been blown-up in the course of the war operations. The pressure here was much more considerable, amounting to three atmospheres, or upwards of 45 lb. on the square inch. Bucquoy's results partly corroborated those of Vivenot; but differed from them in some respects, and notably in the circumstance that, instead of a diminution in the number of pulse, there was a marked increase, perhaps due to the accumulation of carbonic acid in the bell. Lange's experiments were conducted at a pressure of about 800 mm. greater than ordinary. He found the ease and depth of the respiratory movements increased; but their frequency as well as the number of the cardiac beats diminished. There was also slight diminution of temperature under the tongue. Panum's experiments were chiefly directed to the investigation of the chemical changes in the respired air induced by exposure to increased pressure. He found that the amount of carbonic acid exhaled varies with variations in the quantity of air inspired; that, comparing the respiration of equal volumes of air at ordinary and increased pressure, more carbonic acid is eliminated in the latter case; but that if equal weights of the air under the two circumstances are compared, the quantity of that gas excreted is smaller. G. v. Liebig, experimenting under a pressure of 320 mm. in excess, was unable to discover any remarkable difference either in the amount of air respired or of carbonic acid eliminated. Dr. Green's observations were made in an air-chamber employed in excavating the foundations for piers over the Mississippi at St. Louis. The pressure amounted to no less than four atmospheres, or 60 lb. on the square inch. The entrance to the chamber was through an air-lock, in which the pressure was gradually increased in the course of from five to ten minutes to the maximum. The temperature was a little above that of the external air. The increased oxidising power of the condensed air was shown by the rapid wasting of the candles, and by the fact that a candle when blown out rekindled spontaneously from the glowing wick. It was found that the time of labor of the workmen had to be reduced, as the pressure increased, from spells of six hours twice a day to one hour at a time, with three hours of rest; and during the last stages of the work a remarkable form of paraplegia broke out among the laborers, and twelve (at least) died. The exit from the air-chamber was attended by a marked reduction of temperature, which gave rise to frequent catarrhs. Whilst in the lock the pressure increased at the rate of about 1 1-5 oz. per second on each square inch. In the course of three or four seconds a distinct sensation of tension of the tympanic membranes was experienced, which was relieved at once by the experiment of Valsalva (i. e. inflation), by the act of swallowing, or by contraction of the palatine and pharyngeal muscles. In a few seconds more the sensation was reproduced, and had to be relieved by one of the above methods, of which inflation was found to be the most convenient. No peculiar sensations were observed whilst remaining in the chamber; slight exertion, however, caused acceleration of both the respiration and the cardiac beats. The ticking of a watch was unusually loud. The voice seemed changed in timbre; it was found to be impracticable to whistle. On returning from the chamber through the lock the condensed air escaped from the tympanum through the Eustachian tube in a series of little puffs. On one occasion the air was admitted into the lock too rapidly, and the tympanum of one ear of the inmate ruptured with intense pain; frightened, he insisted on immediate release. The air was let out too rapidly, and hæmoptysis, not however to a serious extent nor persistent, occurred as he stepped out of the lock.

NATURE OF THE SPLEEN.

In a little pamphlet just published, Dr. H. Silvester, of Clapham, so well known for his excellent method of restoring suspended animation in asphyxia, advances an ingenious hypothesis of the nature of the spleen, which, though not in any respect new, is important as being supported by a large number of considerations and some ingenious reasoning tending to demonstrate and firmly establish the opinion, now generally entertained, that the spleen is a blood-gland. Dr. Silvester first shows, from the history of the alimentary canal, that it may be regarded as mesial and symmetrical at its commencement and termination, but unsymmetrical in its middle portion. From the lips to the diaphragm it is mesial and symmetrical. The stomach and small intestine are unsymmetrical; the large intestine, again, is essentially mesial and symmetrical. He contends that the right half of the stomach and the right small intestine are alone developed, the left half of the stomach being only slightly developed as the cardiac cul de sac, and the small intestine being altogether undeveloped, with the exception of the vermiform appendix. If the left half of the stomach opened by a pyloric orifice into an intestine which ran sinuously to the vermiform appendix, we should have a complete double and symmetrical small intestine. This deficiency of the left half of the middle segment of the alimentary canal, he points out, explains why the stomach is supplied by one artery instead of by two vessels, one on each side; so that it depends upon neighboring organs for its vascular supply. It explains also why the small intestine obtains only one vessel, whilst the large intestine is supplied by two; and why the various glands, Peyer's gland in particular, are not symmetrically arranged. Passing to the liver, he shows that, instead of, as usual, regarding it as a mesial organ with an undeveloped left and a partially developed right lobe, the latter represented by the lobulus Spigelii and lobulus caudatus, it may more properly be considered as an asymmetrical organ belonging entirely to the right side, that of the left being non-developed in accordance with the non-development of the left small intestine. Hence, although the largest viscus in the abdominal cavity, it is supplied by only one artery from the aorta, instead of by two; hence there are not two portal systems, one for each side of the abdomen; and hence also there is but one umbilical vein instead of two, whilst there are two umbilical arteries. Turning finally to the spleen, he points out that this is properly to be regarded as an asymmetrical organ; and, whilst admitting that it has long been allowed to possess important relations both to the development and to the disintegration of the blood-corpuscles, he contends that this function has been shown by the researches of Bernard and others to be to some extent shared by the liver. Hence the liver is equivalent to the spleen *plus* a bile-secreting apparatus; and from the relations of these organs to the food and to the blood respectively, still bearing in mind the absence of the right small intestine, we obtain an insight into the cause of the large size of the fœtal liver and the small size of the spleen before birth, with the diminution of the former and the increase of the latter after birth,—the circumstance of there being one splenic artery instead of two,—the unsymmetrical form of the organ,—and the absence of any biliary function. He concludes what we consider a very creditable piece of reasoning by the observation that the spleen is not the undeveloped liver of the left side of the body, nor is it the parenchyma of the liver disunited from the pancreas, nor is it a blood-gland in the mesial line of the body, having no homologous relationship with the liver. The spleen is a sanguiferous gland situated on the left side of the abdominal cavity. It is the left lateral homologue of a portion of the liver, the liver being a combination of a sanguiferous gland and a biliary apparatus.

Medical Annotations.

"Ne quid nimis."

THE MODE OF PREPARING CHLORAL AND ITS HYDRATE.

Several of our readers having made inquiries of us respecting the mode of preparation of chloral and its hydrate, now so extensively used in the treatment of nervous diseases, we extract the following account from the "Traité de Chimie" of M. Dumas, t. v., p. 599:—"This compound, the name of which is derived from the first syllables of the words Chlorine and Alcohol, appears in the form of clear, transparent liquid, oily to the touch, and staining paper like an oily body, though the stains disappear in a short time. Its density is 1·502. It boils at 94° C., and distils without alteration. The density of its vapor is 5·0. Its odor is penetrating, provoking a flow of tears; its flavor slightly oily. In the anhydrous state it is very caustic, especially when the skin is exposed to the boiling vapor. It readily dissolves in water, which takes up a large quantity without leaving any residue. When a few drops are allowed to fall into water, they settle at once to the bottom of the vessel in the form of an oleaginous liquid; but on slight elevation of the temperature, they immediately dissolve. The solution of chloral in water has no perceptible taste, but its characteristic smell is perceived if it be warmed. The liquid does not possess an acid reaction. No precipitate of chloride of silver is produced on the addition of the nitrate. If, instead of warming it with water, it be merely placed in contact with a few drops, it combines with it at once on agitation with the evolution of heat. A few moments afterwards the compound assumes the form of a white, crystalline mass. If a few drops of chloral be placed in a flask containing moist air, the walls of the vessel become covered with delicate, stellate crystalls, decussating in all directions, and composed of hydrate of chloral. When the chloral is not perfectly pure, containing a little water, it becomes cloudy after some days, and deposits from its watery solution a white body which may be called insoluble chloral. Chloral dissolves iodine, bromine, sulphur, and phosphorus, especially when heated; iodine communicating to it a beautiful purple tint. The anhydrous metallic oxides have no action upon it. When the vapor is made to pass over warm and anhydrous lime, or baryta, it renders them incandescent; and, transmitted over iron or copper, it converts them into metallic chlorides, whilst they become coated with a layer of brilliant porous carbon. The *hydrated* alkaline oxides readily decompose chloral, leading to the formation of chloroform, formiate of the base, and a little chlorine proceeding from the decomposition of the chloroform. Nitric acid even when heated, has no action on chloral. The best mode of preparing it in a pure state is to subject absolute alcohol to the action of dry chlorine. Great precautions are requisite, since, in order to act upon about half a pint of alcohol, 1200 litres of chlorine are required, and 1500 litres of disengaged hydrochloric acid have to be disposed of. The chlorine, pure and dry, is transmitted through the alcohol contained in a large flask, from which an escape pipe leads to a large chimney. At first all the chlorine is converted into hydrochloric acid; but as the action becomes less energetic, the alcohol assumes a yellow color, which, however, disappears on the introduction of a few fragments of charcoal. The temperature of the alcohol must then be steadily and continuously raised, whilst the current of chlorine is rapidly passed through the fluid, till almost its boiling point is reached. In twelve hours about six ounces of alcohol can be converted into chloral; but when larger quantities are required, the operations must be continued for two or three days. The liquor in the flask is mixed with two or three times its volume of concentrated sulphuric acid, and submitted to careful distillation, in order to free it from hydrochloric acid, sulphuric ether, and alcohol. As soon as the temperature rises, the chloral accumulates at the surface of the mixture, and rapidly volatilises. The distilled chloral is then placed in a retort with a thermometer, and boiled till its boiling point, at first lower, rises to 94° or 95° C. The remaining liquor should be redistilled with sulphuric acid, and again boiled. Lastly, it is to be distilled in a bath of common salt, after the addition of a small quantity of lime. To obtain the hydrate, it is only requisite to mingle it with its own volume of water, and evaporate."

THE ROYAL SOCIETY.

Sir Edward Sabine gave the first of his two annual *soirées*, as President of the Royal Society, in March last, when many hundreds of visitors assembled at Burlington House. What had most interest for members of our profession, and for physiologists generally, were the experiments performed by Mr. John Norris to show the cohesion of colloidal films and spheres, by which he believes that the passage, *en toute pièce*, of the blood-corpuscles through the capillary walls, as observed by Cohnheim and others, can be explained. Dr. Norris used for the purpose a solution of soap and metal rings of various diameters, set in handles, to hold the films, the spheres being the ordinary blown soap bubble. When such a bubble was allowed to fall upon a film, it at once assumed a flattened oviod form, and projected equally on either side of the film, moving readily across it as the frame was inclined from one side to other. By a dexterous application of the blowpipe Dr. Norris next took away the bubble from the opposite side of the film to that to which it had been first applied, leaving the latter unbroken. Thus the sphere had passed through a film which presented no opening of any kind, without rupturing it. Solid bodies well moistened externally, such as an orange, or a mass of glass, were also passed through. A certain proportion of moisture Dr. Norris has found to be essential to the cohesion of the colloidal substances; for if the sphere and the film were kept apart for a few seconds, no such result ensued; the sphere rested on the film without cohering to it, or changing its shape. Applying the knowledge acquired by these experiments to the migration of the blood-corpuscles through the capillary tissues, it may be conjectured that such a relation as regards moisture exists between the corpuscle and the wall of the vessel in the normal state, as to prevent the passage of the one through the other; but if this relation be disturbed by any cause, cohesion of the opposed surfaces occurs, and the sphere (blood disc) passes through the film (wall of the capillary). The aggregation of the corpuscles into rouleaux, under certain conditions, may also perhaps be similarly accounted for.

THE FUNCTIONS AND PATHOLOGY OF THE SPLEEN.

For some time past Professor G. Baccelli, of Rome, has been engaged upon an investigation into the functions and pathology of the spleen, originally undertaken with a view of obtaining some insight into the nature of the malarial fever of Rome; and the results of his inquiry have been given in a recent number of Virchow's *Archiv*, by Dr. Valentine, of Salzbrum. Dr. Baccelli remarks that in the intermissions of the first attacks of malarial fever there is frequently a great increase of appetite, which, however, is soon followed by gastric catarrh, leading to a very complete loss of digestive power (known even to Celsus) for albuminous compounds. His researches have led him to believe that the increase of appetite at the commencement of the disease is due to simple hyperæmia of the spleen; whilst the disturbance of digestive power, occurring after repeated attacks, was attributable to the persistent hyperæmia of the organ producing physiological disturbance of its functions. The large veins of the spleen, he points out, are destitute of valves, and pass, imbedded in the pancreas, and therefore imbedded in the stomach, and in front of the spinal column, to the liver, so that the blood only traverses them unimpeded when the stomach is empty; whilst, when the stomach is full, the blood current is more or less arrested. During digestion, physiological enlargement of the spleen occurs; and, partly owing to the contractility of the organ, and partly to the pressure by the stomach on its veins, its blood is returned by the vasa brevia and coronary veins. But he has found that from the splenic pulp, and from its venous blood, a juice can be obtained containing pepsine, and capable of digesting coagulated albumen. The spleen, he is therefore disposed to think, prepares from the disintegrated albuminates of the blood-corpuscles the pepsine that is afterwards secreted by the glands of the stomach. The hyperæmia of the spleen occurring at the commencement of the malarial intoxication occasions an increased secretory activity of the gastric peptic glands, and thus accounts for the increased appetite observed at this period; but, at a later stage of the disease, the persistence of the hyperæmia causes stasis of the blood in the swollen spleen, accompanied by a kind of paralysis or functional disturbance, and the patient is no longer capable of digesting albuminoid food.

NEW FLUID FOR THE PRESERVATION OF MICROSCOPIC PREPARATIONS.

Max Schultze, in the last part of his *Archiv für Mikroscopik Anatomie*, observes that of all fluids now in use for the preservation of microscopical specimens, glycerine either pure or mixed with other reagents, is most widely employed. This substance, though possessing the peculiarity of rendering many tissues transparent, yet unites with fats, and so modifies the differences of refraction occasioned by the presence of fat. Since the introduction of perosmic acid a new disadvantage attaches to glycerine—namely, that if the least taste of the acid remains, the glycerine becomes black, especially around the preparation, and there are no means of removing perosmic acid completely; washing, even when continued for days, being insufficient. Under these circumstances, M. Schultze has been engaged in seeking for a fluid which might replace glycerine, and has, he thinks, discovered one in a nearly concentrated watery solution of *acetate of potash*. According to Dippel, through whose work Schultze first became acquainted with it, it was originally employed by Sanio for the investigation of vegetable structures in place of chloride of calcium; and Dippel found it serviceable also for preserving animal tissues. Schultze applied the fluid in the same way as glycerine, a drop being allowed to flow over the specimen after it has been prepared in water or serum, without raising the cover. After the lapse of twenty-four hours the preparation is luted down. As the fluid neither dries up nor crystallises out, the specimens may be long preserved in it. M. Schultze states that the solution has now been in use for two years in his laboratory, and no disadvantages have been found to attach to it, possesses all the advantages of glycerine.

ABLATION OF BRONCHOCELE.

In the last number of Hay's *American Journal of the Medical Sciences*, three cases are reported by Dr. Warren Greene, in which bronchoceles, that from their size had become not only an incumbrance to the patient, but absolutely dangerous to life, had been successfully removed. In one of these the tumour had been present for twenty-six years, but had only recently taken on rapid growth. Its dimensions were such that the common carotid was pressed behind the posterior edge of the sterno-mastoid muscle, whilst the trachea was pushed over to the left side. Any attempt to swallow or talk produced terrible spasms of dyspnœa. The patient was unable to lie down, and required constant watching during her broken sleep, lest she should die of suffocation. She suffered from headache and giddiness, and could not stoop without losing consciousness. She gladly accepted the proposal of an operation for its removal. She was etherised, and a single straight incision was made over the tumour, from the inferior maxilla to the clavicle. The anterior external jugular vein, which ran close by the line of incision, was not injured. The sterno-mastoid, which was spread over the mass like a thin ribbon, and the several fasciæ, were successfully divided upon a grooved director. The thin veins in and upon the surface of the tumour proved extremely troublesome, and severe hæmorrhage occurred. The areolar attachments were rapidly separated, till the pedicle was reached. In this were three large arteries, immediately recognised by their pulsation. These were quickly separated from each other by the fingers, and each portion of the pedicle tied with eighteen strands of saddler's silk, loosely twisted. All hæmorrhage ceased at once, but on separating the tumour it was found to be firmly adherent to the sheath of vessels, in detaching it from which the internal jugular was wounded. After the removal of the tumour the vein was tied with three strands of silk, loosely twisted. For several days there was considerable irritation of the œsophagus and trachea, but this passed off, and the patient made an uninterrupted recovery. The weight of the tumour was twenty-five ounces avoirdupois. The other cases are of equal interest.

THE AMERICAN COMPASS PLANT.

The current number of the *Popular Science Review* refers to a paper read by Mr. Thomas Hill before the American Association, at the last meeting, in which he states that as he was travelling from Omaha to Chicago, on a very dark day, he noticed, at three different points of the prairies, young plants of *Silphium laciniatum*, and estimated from them, while going at full speed, the course of the railway track. On reaching Chicago he procured, by the kindness of the officials, detailed maps of the track, and found, when he had estimated the bearing at 35°, 75°, and 90°, the true bearings were 31°, 78°, and 90°.

In October, 1860, being detained by an accident at Tama, he gathered seed, and last spring raised a few seedlings. Drought and insects destroyed part of them, and he could only give the history of eight plants, with fourteen leaves. Ten of these leaves showed a strong disposition, when about four inches high, to turn to the meridan; the other four showed a feeble disposition in the same direction. These ten leaves, on coming up in June, had an average bearing of 42°, and the mean bearing was nearly as large. But in August the same ten leaves showed an average bearing of only 4° 30′, and the mean bearing was only 2° 30′. Mr. Hill refers this polarity to sunlight, the two sides of the leaf being equally sensitive, and struggling for equal shares.

HYDATID CYSTS AND TROPICAL ABSCESS.

A short but practical paper by Dr. Cleghorn, of Jounpore, appears on this subject in the March number of the *Indian Medical Gazette*. The author believes that a considerable number of the hepatic abscesses that occur in India are due to suppurative changes taking place in old hydatid cysts previously existing in the liver, and he urges pathologists to investigate this particular subject more fully, contributing himself a number of facts in corroboration of his own views. He thinks that the presence of cysts is a much more rational explanation of the origin and history of tropical abscess than is the operation of chills, dysentery, malaria, and intemperance—causes at work in other countries than India without producing hepatic abscess so frequently, a fact which Dr. Cleghorn argues demands a reason why they do so in India. The preventive remedies he commends for Indians are the use of pure water, carefully cleansed salads and vegetables, the clean feeding of cattle, and the destruction of all organs of animals used for food when diseased by hydatids.

ARTIFICIAL FORMATION OF CONINE.

Ever since the year 1828, when Wöhler transformed cyanate of ammonia into urea, chemists have looked upon the building up of complex organic compounds from their ultimate elements as an achievement which the chemistry of the future would accomplish. In modern times, alcohol, glycerine, sugar of gelatine, and many other organic compounds of various degrees of complexity have been constructed, and chemists are gradually adding to them.

Liebig's *Annalen* for March gives an account of the synthesis of conine, the active principle of hemlock (*Conium maculatum*), which thus becomes the first natural alkaloid artificially produced. The formula of conine is $C_8H_{15}N$. The method by which it was built up was by the action of ammonia on butyric aldehyde—

$$NH_3 + 2C_4H_8O = 2H_2O + C_8H_{15}N.$$

The discovery was made by Hugo Schiff.

From the author's account it does not appear that the *complete* identity of the artificially prepared alkaloid with the natural product has been very clearly established. The artificial product is, however, highly poisonous, like the natural one.

THE OPHTHALMOSCOPE IN THE TREATMENT OF EPILEPSY.

DR. REUBEN VANCE, of the Bellevue Hospital, New York, calls attention to the advantage that may incidentally be obtained from careful ophthalmoscopic examination of the state of the circulation in the retinal vessels in epilepsy as a guide to treatment, especially in determining whether bromide of potassium and depletion may be used, or whether the patient requires tonics, as quinine, iron, and strychnia. He believes that two well-marked groups of epilepsy may be formed in accordance with the intraocular appearances, one group characterised by vascular fulness, the other by anæmia, of the retina. As the brain is anæmic during sleep, it is natural to suppose that the occurrence of sleep would be a predisposing cause of the fits in the anæmic form, whilst in the congestive form they would be more likely to take place during the day. This association he believes he has been able to verify in the early stages, at least of the disease, and finds that the appearances presented by the ophthalmoscope, with the period of the day at which the fits occur, enable him to foretell with tolerable accuracy whether the bromide or the tonics will prove most beneficial, the former acting well in the congestive forms the latter in the anæmic.

TREATMENT OF ANEURISM BY MANIPULATION.

THERE are at present in the General Hospital at Birmingham two most interesting cases under the care of Mr. Oliver Pemberton, which illustrate the marked success which sometimes follows the adoption of Sir W. Fergusson's treatment of aneurismal sacs.

The first is the case of a comparatively young man with a popliteal aneurism, which was accidentally cured by the manipulation which Mr. Pemberton employed in the examination of the case.

The second is one of subclavian aneurism, where, encouraged by his accidental success, Mr. Pemberton kneaded the tumour, and with the most brilliant results. The sac was consolidated, the artery has become blocked up, and the collateral circulation has become completely established. Shortly after the symptoms of obliteration were evident, the suprascapular artery could be felt crossing the sac, and day by day its increase has been marked. The sac probably originated from behind the scalenus anticus.

NATURE OF ADDISON'S DISEASE.

IN a very exhaustive paper on this subject in Virchow's *Archiv*, in which the author appears to have carefully collated and studied almost every case recorded both at home and abroad, Dr. Rossbach, of Würzburg, arrives at the following conclusion: —Addison's disease is a neurosis—that is to say, an affection not at present anatomically demonstrable, but a functional disturbance of the whole nervous system, which stands in close but not in absolutely essential relation with the suprarenal capsules, and is characterised by serious perturbations of the psychical powers, very strongly marked anæmia, extraordinary debility, and very frequently also by a dark pigmentation of the integument (bronzed skin).

GRAPE SUGAR IN NORMAL URINE.

M. HUIZINGA (*Pfluger's Archiv fur Physiologie*, Dec.) demonstrates the existence of grape sugar in normal urine by the employment of Wolframic (tungstic) and molybdic acids. He shows—1. That urine freed from indican, uric acid, and coloring matter, contains a substance which is capable of effecting the reduction of molybdanic acid. 2. Grape sugar reduces this acid also. 3. Urine free from indican, uric acid, coloring matter, *and sugar*, is no longer capable of reducing molybdanic acid. *Ergo*, the reducing substance is grape sugar.

Correspondence.

"Audi alteram partem."

THE SURGERY OF STRICTURE.

To the Editor of THE LANCET.

SIR,—I have just read, in the July number, the discussion, under this head, at the Clinical Society of London. It recalls a remark I have not infrequently made to my students: that, in estimating current surgical literature and polemics, it is necessary to bear in mind that fondness for fashions is not confined to young ladies.

Considering that the controversialists at the Clinical Society were amongst the leaders of modern surgery in the metropolis, I confess the report of their proceedings is scarcely flattering to national pride, or encouraging to scientific aspiration. The discussion about the relative value of elastic and metallic catheters and bougies is a very old tale; and when, twenty years ago, I was working through the hospitals of Europe to judge personally the merits of surgical authors and methods of practice, I came back with a very decided opinion that, in passing catheters and treating strictures, Frenchmen were nowhere, and Englishmen, with Robert Liston in the van, had settled the business. In Paris itself, upwards of thirty years ago, the discussion of the value of metallic *versus* elastic catheters and sounds, of good-sized instruments *versus* bristles, was carried on with characteristic vivacity; and anyone may learn some useful lessons who will read carefully in Mayor's Chirurgie Simplifiée, "Des principles fondamentaux du Cathétérisme," and succeeding chapters.

The vast majority of strictures yield most readily to progressive dilatation with metallic instruments in skilled and gentle hands. Steel sounds, well plated, are the best, on account of their smoothness and weight—the latter a very important quality.

A few words as to progressive dilatation. Assuming a stricture, which, to-day, will only admit No. 5 through it. Nos. 6 and 7 must be passed down at once as far as practicable. To-morrow probably 6 will go through with comparative ease, and then 7 and 8 must follow without delay to the point of obstruction, which rapidly yields; the narrow membranous tube gradually opening out in front of the advancing instrument, just as the glove-finger does in front of the stretcher when pushed along it. In passing urethral instruments, the patient ought always to be in the recumbent position; the instruments to be warm and very well oiled.

In cases of retention there is too much meddling with little instruments—too little reliance on the ease, to patient and surgeon, with which good-sized heavy instruments are passed, especially if they be allowed to find their way by their own weight, the index-finger of the right hand being merely held under the handle of the instrument, and gently shaking it, and elevating it at the proper time. Two well-known agents deserve a few words, because imperfect advantage is often taken of them—opium and hip-baths. The full narcotising effect of the former, carefully watched, induces a flow of urine in most cases of obstruction. As to the hip-bath, let the patient have a blanket folded at his back to rest comfortably, with the feet resting on a footstool to ensure thorough relaxation of all the muscles. The small quantity of water which these baths hold, and their vast extent of cooling metallic surface, render it necessary to remove part of the water every few minutes, and add more hot, a blanket being all the time over patient and bath.

Leeches in perineo are only necessary in exceptional cases, but they are capable of doing a great deal of good. Emptying the bowels by copious warm-water injection is a measure not to be overlooked in all cases of retention presenting difficulty in the passage of instruments. The value of anæsthetics under such circumstances cannot easily be exaggerated.

The frequency of stricture of the urethra is much greater than is commonly supposed, and I feel confident that if the passage were more frequently explored, many men who say they pass water freely, will be found to admit only a No. 6. At this stage a cure is easy and rapid; once effected, symptoms referred to lumbago disappear, and the danger is averted of progressive narrowing to one of those very tight strictures, which so frequently imperil the patient's life and the surgeon's reputation.

These hints are mostly old, though none the less worthy of remembrance. Allowing for the necessarily abridged report at the Clinical Society already referred to, it almost appears as if we were in some danger of forgetting what is already known, in the race after *spécialités et nouveautés*—fashionable milliners' words, but not inapplicable. We need deeper and wider reading, and a little more faith in that clear, sound, male sense, which some time ago made British surgery the first in the world.

In personal discussions courtesy and forbearance cannot be too great; but in debating systems and the features of an epoch and a school, we want plain speaking, to expose fallacies and dispel phantoms which obstruct the clear view of great truths.

I am, Sir, your obedient servant,
SAMPSON GAMGEE.

Birmingham, April 10th, 1871.

THE SPEEDY CURE OF GONORRHŒA BY LOCAL TREATMENT ONLY.

To the Editor of THE LANCET.

SIR,—Will you allow me to lay before the profession through your columns, the highly successful results that I have obtained in the treatment of this disease by *local* means *only*. It has long been a matter of surprise to me that a complaint like gonorrhœa, owing its origin to a *purely local* cause, and usually unattended with any constitutional disturbance should ever have been treated by any other than *local* remedies. Under the plan of treatment that I have adopted, I find that, as a rule, the discharge ceases on the third or fourth day, sometimes even sooner. In only two cases has it continued beyond a week, and in both these cases the patients admitted that they had not used the injection regularly. Never, in any instance, and I have always inquired particularly on this point, has the use of the injections been attended with pain or inconvenience. I wish to draw particular attention to this face, as many authorities on this subject—Sir Astley Cooper included—caution us against their *early* use. The very unsatisfactory results that have hitherto followed this mode of treatment are, I believe, owing to injections of much too powerful and irritating a nature having been employed, and ought not, I think, to prejudice us against their judicious use. The injection at first employed should not be too strong—two grains of sulphate of zinc to one ounce of water I usually find answers very well. I generally direct it to be used four times a day, this being as often as most persons have the opportunity; but, when convenient, I think it desirable that it should be used more frequently. I always impress particularly upon these patients (and this cannot, I think, be too strongly insisted upon) the importance of continuing the use of the injection for a week at least after the discharge has entirely ceased, and that it should not be left off *suddenly*, but *gradually*. I believe that *gleet* and *stricture* will very rarely, if ever, occur after this mode of treatment.

I am, Sir, yours obediently,
PHILIP FOSTER, M.D.

Leeds, April 19th, 1871.

PRURITUS VULVÆ.

To the Editor of THE LANCET.

SIR,—In reply to "Chirurgicus," a letter from whom appears in your previous issue, asking for a suggestion in a case of pruritus vulvæ, I beg to inform him that a case similar to the one he mentions has been under my treatment, and that I have found the application of the undermentioned lotion (by means of a soft sponge after ablution morning and evening, or through the day should symptoms of approaching irritation at all manifest themselves) attended with the most satisfactory and speedy results:—Biborate of soda, two drachms; hydrochlorate of morphia, one scruple; hydrocyanic acid, one drachm; glycerine, one ounce; distilled rose water to eight ounces. Yours faithfully,

W. M. MacGrath, F.R.C.S.I.,
Surgeon, P. and O.S.S. *Delta.*

Southampton, April 1st, 1871.

To the Editor of The Lancet.

Sir,—Let "Chirurgicus" try solution of permanganate of potash, or, what, on account of its greater alkalinity, is better, Condy's fluid, applying it several times a day of full strength. Yours &c.,

H. W.

April, 1871.

DR. RICHARDSON ON CHLORAL HYDRATE.

Before commencing his lecture on Experimental and Practical Medicine, Dr. Richardson offered some observations on the subject of Hydrate of Chloral, to which we would call the attention of our readers. He said:—

My lecture to-day is on Suspended Animation, but I will ask you to allow me first to offer a note or two on another subject, at this moment of urgent importance. I refer to the administration of the hydrate of chloral. There have recently been two assured deaths from the hydrate. In the course of the past ten days, I have myself been consulted not fewer than three times on what have been considered dangers attending the administration of the hydrate, and I know generally that doubt and uneasiness prevail in the profession respecting the abuse as opposed to the use of this agent. I think it right, therefore, as I had much to do in introducing hydrate of chloral into medical practice in England, to answer a few of the questions that are most pressing from this place, where so many demonstrations of the action of the hydrate have been carried out.

1. *Is the practice of resorting to the use of hydrate of chloral, as a narcotic, in the absence of medical advice and direction, becoming a common practice among the people?* The answer to this question is strictly affirmative. The novelty of its administration and of proving its effects at an end, the hydrate is not at the present time used so largely by the medical profession as it was a few months ago, when its true place in the Materia Medica was less clearly defined. The sale of the hydrate of chloral to medical men is consequently considered as declining, while the general sale is, perhaps, increasing. Corresponding with this state of things we, in the profession, are becoming conversant with cases of what may not improperly be called "chloral drinking," and in which serious and singular symptoms are presented. Three classes of people specially resort to hydrate of chloral—viz., alcoholic devotees, who take the substance to counteract excess of alcohol and to relieve alcoholic delirium; sufferers from neuralgia and other painful chronic diseases, who find in the substance temporary relief from pain; and persons having much mental worry, grief, or care, who, flying to it at first in order to obtain sleep, continue it until the occasional practice becomes a persistent habit. As an indication of the quantity of hydrate of chloral used in this country since its introduction here about a year and a half ago, I may state, incidentally, on what I have every reason to consider reliable authority, that one commercial house alone has supplied the English drug market with ten tons of the substance; three other houses have, it is supposed, supplied as much; so that fifty tons weight have been, on this calculation sent out—an amount which, divided into grains, would yield over thirty-six millions of narcotic doses to England alone since August, 1869.

2. *What is a dangerous and what is a fatal single dose of hydrate of chloral?* The largest dose I have known to be taken is one hundred and twenty grains. This dose produced a prolonged and dangerous coma, but recovery ultimately followed. I think we may consider a hundred and twenty grains, as a maximum dose for an adult, dangerous, but not of necessity fatal. Beyond a hundred and twenty grains the danger increases, and a hundred and eighty grains may be considered a dose that would prove, in the majority of cases, positively fatal.

3. *What quantity of hydrate of chloral can be given with safety in divided doses during a stated period of time, say of twenty-four hours?* Judging from the physiological effects of hydrate of chloral in relation to dose, and to order of phenomena in relation to time, I should infer that the body cannot decompose and throw off the hydrate more rapidly than at the rate of from five to seven grains per hour. There will be difference according to age of person, the temperature to which the body is exposed after the dose has been taken, and the largeness of the dose, a small dose being disposed of quicker in proportion than a large one. But the variation is not such as to alter materially the rate of action from the estimate given. I should consider, consequently, that a hundred and twenty grains, administered, even in divided doses, in twenty-four hours, would be the safe limit of administration. In the treatment of tetanus this proportion has been exceeded, but not, I think, to the safety of the patient; for the fact that the hydrate of chloral overcomes or reduces the spasm is no safeguard against its own poisonous effects. From what I know, I conclude that the hydrate of chloral can be given to the extent of overcoming the severest spasm; but if the dose be carried too far, with the determination of removing spasm at all risks, the success may easily be bought at the expense of a fatal narcotism from the remedy.

4. *Does the frequent administration of hydrate of chloral lessen or increase the danger of the administration?* On this question I am forced to state that the frequent administration of the hydrate of chloral, though it may suggest greater confidence in it on the part of those who take it, increases the danger from an excessive dose. Hydrate of chloral differs from opium in this respect. Opium produces chronic symptoms peculiar to itself, but the dose may be steadily increased without any immediate danger from the increase. Hydrate of chloral cannot be used in this accumulative way without danger. In a word, although a person may become habituated to hydrate of chloral, there is a limitation of the

quantity to be taken safely, which limitation is not materially modified by persistence in the habit of taking it, but rather the reverse.

After discussing three other questions, relating to the symptoms and pathological changes incident to the habitual use of chloral hydrate, to the chemical tests for the hydrate in cases where it has caused death, and to the post-mortem distinctions in instances of chronic poisoning by the hydrate and by chloroform, Dr. Richardson concluded by observing that, as the world was indebted to the profession of medicine for the benefits derivable from the hydrate of chloral, it behoved the members of the profession to use their influence in protecting the public from an agent which, under improper use, might be turned from its good purpose to positive evil.

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EXPERIMENTS ON BREAD DIET.

The last part of the *Zeitschrift für Biologie* (Band vii., Heft 1) contains some interesting investigations by M. Gustav. Meyer, of Oldenberg, on the effects of bread diet on man and dogs. The experiments on dogs showed the bad economy of exclusive bread diet, as compared with one in which there was a due proportion of meat. Where bread alone is consumed, a considerable quantity of its albuminous constituents pass away unabsorbed, by the fæces, which under such circumstances are always abundant. Their character is peculiar. They are of a yellowish color, homogeneous, soft, contain numerous air-bubbles, and on the average 79 per cent. of water and 26 per cent. of unaltered starch. There is no sugar, but part of the starch appears, as stated by Bischoff, to undergo metamorphosis into the lower fatty acids, especially butyric, in the large intestine, which occasions the rapid evacuation of the fæces, and confers upon them a strong acid reaction. Bread-diet fæces contain 32 per cent. more water than the bread itself; meat-diet fæces, on the other hand, contain 30 per cent. less water than the original flesh. It appears to be a matter of importance in what form the flour of the different kinds of corn is consumed; as bread, more fæces are discharged, and less is absorbed, than in the form of cakes, dumplings, &c. The peasants in Alt-Bavaria and Suabia are chiefly fed on fatty, compact dumplings (*Nudeln*, *Knödeln*, *Spätzlein*, *Schmarren*), from which good digestive organs can extract more nourishment than from bread, of which in many parts only a small quantity is consumed. We have here additional evidence that the nutritive value of substance does not depend exclusively upon its chemical composition, but is affected by other circumstances. With meat diet the sparing quantity of fæces discharged is only in very small proportion composed of the unabsorbed remains of the meat consumed, 2500 grammes of meat making scarcely more fæces than 500 of bread. An addition of sugar in nowise alters the quantity or the quality of the fæces, the sugar undergoing complete resorption. An addition of starch, especially in the form of bread, on the other hand, changes both the quantity and the quality of the fæces, which come to resemble the food ingested, and to augment in quantity with its increase. On account of the abundant fæcal evacuations with bread diet, it is difficult to preserve the albuminous constituents of the body at their normal standard. The following table exemplifies some of these facts:

Exp.	Food in grammes.	Dry fæces.	Nitrogen in fæces.
1 ...	1000 bread	70=13 per cent.	... 2·4=19 per cent.
2 ...	1000 " 100 meat ...	66=12 "	... 2·1=13 "
3 ...	1000 " 300 " ...	75=12 "	... 2·3=10 "
4 ...	377 meat 184 fat ...	20= 7 "	... 1·0= 8 "
5 ...	377 " 442 starch...	68=13 "	... 1·5=12 "

From all this it appears that it is disadvantageous to attempt to nourish an organism on bread alone; the addition of a small quantity of meat to full bread diet is of great assistance in promoting its nutritive value. The same rule is applicable alike to man and the dog in this respect. On bread diet, or, in other words, on insufficient albuminous diet, the various tissues of the body become more watery, which again renders them more liable to disease. M. Meyer, finding that considerable differences in the nutritive power of bread diet resulted from the mode of preparation in dogs, was naturally led to investigate this point in relation to man; and he determined to ascertain the effects of dieting on different kinds of bread-stuffs on a healthy young man. Each experiment lasted four days. It was found impossible to give sufficient bread to maintain the individual at his full weight. To facilitate digestion 50 grammes of butter and 2 litres of beer were allowed, and the quantity of bread given was 800 grammes per diem. The bread-stuffs employed were—first, the Horsford-Leibig rye bread. This bread contains no bran, is made without yeast, and is rendered porous by means of carbonic acid generated from bicarbonate of soda by the admixture of the acid phosphate of lime and magnesia (and of chloride of potassium), which salts forms part of its nutrient properties. The bread was enjoyed, but the subject of the experiment complained much of hunger, especially in the morning. The second was Munich rye-bread, which was less relished, and was also insufficient to satisfy hunger. The third was white wheaten bread, which was much liked; but the feeling of hunger on the fourth day was unbearable. The last was North German black bread (*Pumpernickel*). This, being the ordinary food of the subject, was of course liked best. The Horsford-Liebig bread is solid and compact, and offers resistance to the process of digestion; hence its solution and absorption are slow, and occasion large fæcal evacuations. The Munich rye-bread is looser in texture, is therefore more easily digested and the fæces are both less in quantity and contain less nitrogen, though the bread contains more than the Horsford-Leibig bread. The wheaten bread is still more perfectly digested, no less than 94·4 per cent. of the dry material being absorbed. The *Pumpernickel*, on the other hand, offers the greatest resistance to digestion on account of its density and the coarseness of the meal, and only 81 per cent. of the dry material is absorbed. These experiments therefore show, in opposition to the generally received opinion, that, with equal consumption of dry material, wheaten bread is by far the most nutritious of the above four kinds of bread, as it furnishes the smallest amount of fæces, containing also the least proportion of nitrogen. In feeding large numbers, however, calculations respecting relative cost must be considered, and from these experiments it may be shown that the order of value of the four kinds of bread is—Munich rye-bread; *Pumpernickel*; Horsford-Leibig bread; wheaten bread. Finally, he makes some observations on bran, the addition of which to bread he thinks of little value in a nutritive point of view.

Foreign Gleanings.

SULPHATE OF QUININE IN OBSTETRIC PRACTICE.

Dr. Monteverdi considers (*Nuova Lig. Med.*, No. 4, 1870) that he has discovered new properties in this salt. According to the author, it acts not only as a general tonic, but also directly on the uterus, causing contractions which lead to the expulsion of fœtus and placenta. In this respect the quinine is thought greatly superior to ergot, as it does not, like the latter, act injuriously on the fœtus; nor is this all, as the quinine may be used in cases of narrow pelvis, undilated os uteri, and before the escape of the amniotic fluid. It may also be given in the hæmorrhage occurring in pregnant women, in amenorrhœa, depending on a torpid state of the uterus, and in puerperal fever.

THE MANAGEMENT OF THE PLACENTA.

Dr. Chantreuil has inserted an essay in the *Archiv. de Méd.* (October, November, and December, 1870), which he entitles "Uterine Expression." We are all acquainted with Dr. Hick's plan of combined external and internal manipulations in certain stages of parturition; here, however, we are advised to compress the fundus of the uterus steadily after the expulsion of the fœtus, so as in some degree to express the placenta, as a cherry-stone is expressed from the fruit. The essay of the author is extremely well written, and his quotations prove his reading to be very extensive. He points out the dangers of pulling upon the cord, and the risk the mother runs when the hand is introduced into the uterine cavity. But he does not allow sufficient importance to the spontaneous extrusion. Dr. Chantreuil reminds his readers that R. Wallace Johnson in 1769, recommended a pressure of the same kind, combined with some traction of the cord. But Prof. Crédé, of Leipzig, is the first who advised the practice in all cases. Dr. Chantreuil has collected no less than 540 cases in which uterine expression has been used by himself, and found that the placenta came away 32 times immediately after parturition; 78 times one minute afterwards; 175 times in two minutes; 109 times in three minutes; 50 times in four minutes; 47 times in five minutes; 20 times in seven minutes; 4 times in eight minutes; 11 times in ten minutes; 3 times in twenty minutes; and once in twenty-five minutes.

SUBLIMATE AND COMMON SALT IN SUBCUTANEOUS INJECTIONS.

Dr. Stern was apprised by Mr. Müller, chemist in Breslau, that corrosive sublimate and common salt combine chemically, and form a soluble compound which does not precipitate albumen. He forthwith tried the fluid for hyperdermic injections in syphilis, and used the following solution:—Two parts of sublimate and from twenty to twenty-six parts of common salt to one thousand of water. No heat or pain is felt, and abscesses do not occur. The same physician found that he could with advantage administer the bichloride internally, in the following manner: From the fifth to about half a grain of corrosive sublimate, and from half a grain to one grain of common salt, may be dissolved in five ounces of water; the whole to be taken in two days. *L'Imparziale*, April 16th, 1871, says half a grain to one grain of common salt, but this must be a misprint (two to four centigrammes). Grammes were probably meant, making from thirty grains to sixty grains of common salt. No syrup should be added, and no acid or saccharine food be used. The author states that fifty-one cases were thus treated successfully, and that the syphilitic ulcers healed rapidly by the topical application of this solution:—Two hundred parts of water, one part of sublimate, and ten of common salt.

HYDROCELE IN THE FEMALE.

Dr. Bennett has published such a case in the *Med. Record*, No. 114, 1870:—"The tumour had been considered of a hernial nature by several surgeons; but Dr. D. Bennett, finding that it did not return into the abdomen in the supine position, and that the tumour did not feel doughy, but rather gave the sensation of a fluid, considered it, though not found transparent, as a hydrocele of the round ligament. The swelling was punctured with due care and precaution, and clear serum was obtained. Subsequent injections of iodine led to an eventual complete cure.

SPOON-FEEDING.

Dr. Fürst has published a pamphlet on this subject in Leipzig, wherein he gives good advice to mothers. To judge of the success of this kind of feeding, the author gives the following criteria:—At birth the child weighs from about six pounds and a quarter to eight pounds, the first for girls, the second for boys. During the first three days the infant loses about four ounces, but recovers its original weight about the ninth day. The child should, in the first four months, increase from 300 to 375 grains per diem, and later only from 150 to 225 grains. At twelve months old a boy should weigh twenty pounds, and a girl about eighteen pounds and a half. If the child is far below the averages just mentioned, the assistance of a medical man should be requested.

News Items, Medical Facts, &c.

Small-pox is reigning epidemically in Berlin, and the huts which had been run up during the war have been taken down to be erected again in another locality and to serve as small-pox infirmaries. The disease is also reigning in Chemnitz, where the protecting power of vaccination has been clearly manifest.

The New Hotel Dieu of Paris.—It has been proposed to transform this unfinished building into a town-hall, as the latter venerable building has been reduced to ashes. As the sanitary arrangements of the new Hôtel Dieu are very defective, such a change would be very desirable.

Graefe's Successor.—Prof. Schweigger, a pupil of the late eminent ophthalmologist, has just been appointed to succeed Graefe at the Charité Hospital of Berlin. Dr. Schweigger had hitherto occupied a chair in Zurich.

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PRACTICAL PHYSIOLOGY.*

Lectures

ON

EXPERIMENTAL PHYSIOLOGY.

By Wm. Rutherford, M.D., F.R.S.E.,

Professor of Physiology in King's College.

LECTURE VII.

INNERVATION (continued).

Instruments for operating upon the spinal cord. Apparatus for securing animals.

Gentlemen,—When we last met we studied the special functions of nerves, together with the nerve arrangements concerned in reflex actions. The latter subject led us to some considerations regarding the brain and spinal cord. As it is not my intention to show you any further experiments upon the spinal cord, we shall leave the further discussion of its functions to systematic lectures.

The great vaso-motor nerve centre appears, from the researches of Ludwig, Thiry, and Owsjannikow, to be situated in the medulla oblongata. From this centre the vaso-motor nerves pass through the spinal cord to all parts of the body. In experiments upon the vascular system it is often necessary to stimulate these nerves. This may be most readily done by means of the induced electrical current. If you propose to do this in the frog, you require a pair of electrodes, made by thrusting two strong sewing-needles through a thick piece of cork, gutta-percha, or sealing-wax, which serves to insulate them as well as to hold them. The needles should be heated, in order that they may readily pierce the sealing-wax or gutta-percha. The needles should be separated from one another by an interval of about a quarter of an inch, and their points should project beyond the gutta-percha to a distance of about a third of an inch. The heads of the needles must be soldered or otherwise joined to wires, in order to transmit the electricity through them. In experiments on rabbits and dogs you require a pair of Ludwig's electrodes (Fig. 19). Each electrode consists of a cylinder of ivory (B) in which an ordinary gimlet-screw (C) is fixed. The end of this screw, hidden within the ivory, is joined to a little brass tube, which slightly projects from the opposite extremity of the ivory. A brass stopper (A), with a wire attached to it, is pushed into the brass tube when it is proposed to send the electricity through the screw (C). When you desire to use these electrodes, make an incision along the spinous processes of the vertebræ, and then either simply screw the electrode through the vertebral lamina into the cord, or lay bare the cord and screw the electrode through it into the subjacent body of a vertebra, in order to fix it firmly *in situ*. The ivory of the electrode serves not only as a handle, but also in some measure to insulate the screw from the muscles of the back. Of course the electrical current is not by such instruments localised to the spinal cord. Nevertheless, they answer well enough the end for which they were intended.

For various purposes it is sometimes necessary to divide the lateral half of the spinal cord, or medulla oblongata. This may be readily done by thrusting a knife, grooved on one side, into the posterior medium fissure. The grooved surface is of course turned towards the side of the cord to be cut across. The division of the cord is effected by thrusting a second knife down the groove upon the first, and cutting outwards. I show you two forms of this grooved knife. (Figs. 20 and 21). One of these (Fig 20) has, in the hands of Brown-Séquard, done good service to physiology. It is simply a flattened blade with a groove (*b*) on one surface. The other knife which I show you (Fig. 21) is Ludwig's. It is very much smaller than Brown-Séquard's. This renders it inconvenient to handle; but, on the other hand, when once it is placed on the spinal cord it can be left there without being held by the hand until you desire to make the section. In introducing the knife, it is most convenient to hold its flattened neck (*a*) by means of a pair of strong forceps.

In all those experiments where the brain or spinal cord is to be cut or otherwise injured, one must, in every case where it is possible, afterwards harden the nerve-tissue, and then subject sections of it to microscopic examination, in order to ascertain the precise seat and extent of the lesion.

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* See note at close of lecture.

[The cerebrum was then removed from a pigeon, and the well-known effects of this lesion were pointed out. From another pigeon the cerebellum was removed, and the result of the lesion commented upon.

FIG. 19.

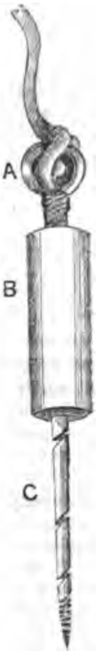


FIG. 20.

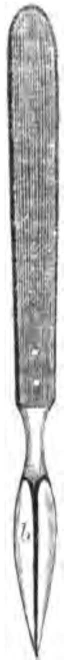


FIG. 21.

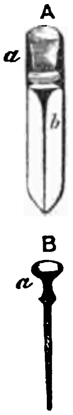


FIG. 19: One of Ludwig's electrodes for stimulating the spinal cord of a dog or rabbit. C, Screw electrode. B, Ivory handle. A, Wire. (Exact size.)

FIG. 20: Brown-Sequard's grooved knife for division of the spinal cord. *b*, Vertical groove on one surface. (Reduced one third.)

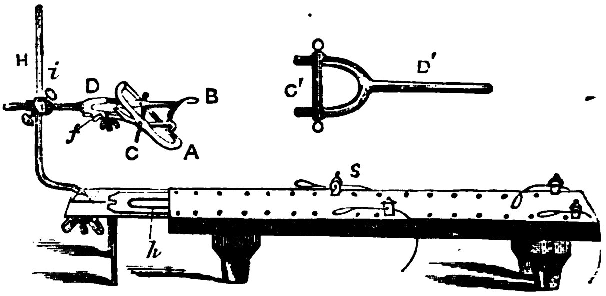
FIG. 21: Ludwig's grooved knife for dividing the spinal cord. A, shows the groove (*b*); B is a profile view. The neck (*a*) is flattened, in order that the knife may be held in a pair of scissors. (Twice the real size.)

The trunk of the cervical sympathetic was then divided in a white rabbit, and effects of this lesion upon the vascularity and temperature of the ear, the size of the pupil, &c., were observed and explained. The effect of irritating the cranial end of the nerve was also shown. It is thought unnecessary to detail here the performance of these experiments, or to comment upon their results.]

You will see some other experiments upon the nervous system when we come to study the circulation and respiration. I close to-day's demonstration by alluding to the modes in which animals may be secured for the purposes of experiment.

It is not difficult to fix frogs. One requires nothing more than a plate of cork or a piece of pasteboard 8 in. by 4 in. The animal may be held by threads passed round the fingers and toes, and fixed in slits in the pasteboard. It is of course much more difficult to secure a rabbit, a cat, or a dog. For a guinea-pig, rabbit, cat, or small dog the ingenious apparatus (Fig. 22) invented by Czermak answers admirably. It consists of a small wooden table, with numerous holes near its margin, through which cords or tapes for securing the legs of the animal may be passed and tied to the board; or the cords may be more conveniently fastened by passing them through brass holders (S) fixed above the side of the board. Each holder is perforated by a hole, through which the cord is passed. The screw on the top of the holder is connected with a movable segment of the wall of the hole. When the screw is turned homewards it raises the segment, and in so doing clasps the cord firmly. Ordinary strong tape or cord may be used. The latter is not so soft, but it lasts longer. A running noose must be made at one end of it. An iron plate is fixed to one end of the wooden table. In the centre of this is a large hole, through which it is sometimes convenient to divide the spinal cord. When not in use this hole may be closed (as in Fig. 22) by means of a mental plate (*h*). The head of the animal is fixed in a sort of vice. This is secured in a forked holder (D), the handle of which is supported by a vertical iron rod (H). The apparatus for holding the head of a rabbit, a cat, or guinea-pig (Figs. 23 and 24) consists of two curved iron bars (A and B), which are placed, one (A) over the upper, the other (B) under the lower jaw. The two bars are articulated one with the other, so as to form a figure like that of the letter X. The jaws come between two extremities of the X, and are firmly clasped by these, owing to their other ends being approximated by means of a screw (*f*). An iron pin (C, Fig 23) is passed behind the incisor teeth, and, as long as the jaws are kept closed, this effectually prevents the withdrawal of the head from the apparatus. When the apparatus is applied, the pin (C, Figs. 22 and 23) should be withdrawn. and the bars (A and B) put over the jaws. Before the jaws are compressed by the screw (*f*), the pin (C) should be pushed through (*a* and *á*) behind the incisor teeth; after which the jaws must be firmly closed by bringing the screw *f* into the slit *g*, and turning the head of the screw so as to compress the jaws. The portions of the bars which press upon the jaws should be covered with thick india-rubber to equalise the pressure. For even small dogs the apparatus for securing the head is neither large enough nor strong enough. In these cases an apparatus for fixing the

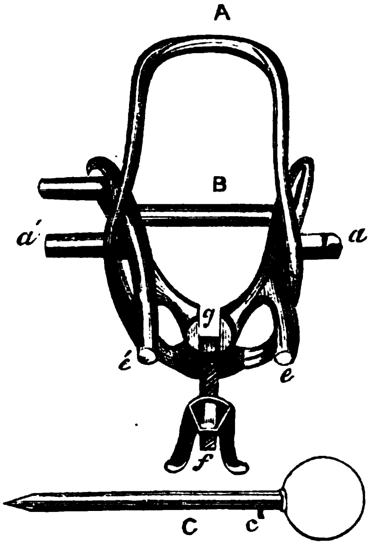
FIG. 22.



Czermak's rabbit-holder. The animal is laid upon the table. The binding-cords are fastened in the holes or the screw-holders (S) along its sides. The head is fixed in the apparatus (A, B, C, *f*). (See the description of this under Fig. 23; the letters are the same.) D, A forked bar for supporting the head apparatus. *i*, Screws for fixing this on the rod (H). *h*, A metal plate covering an opening; the opening is used for operating upon the spinal cord or back part of the head. D', A forked bar, which is used instead of D when the animal is a dog. C', A bar which goes behind the canine teeth; it is used for dogs instead of the apparatus (A, B, C).

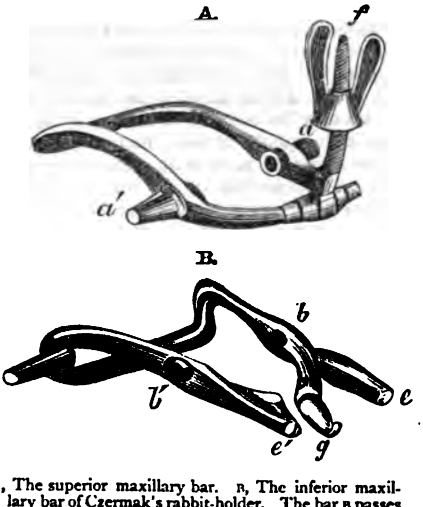
head suggested by my friend Dr. Lauder Brunton answers well. It consists of an iron bar (C', Fig. 22) which is placed across the mouth behind the canine teeth. The mouth is closed by strapping or tying the jaws together before and behind the bar; and the head is held in position by fixing the bar (C') to the forked bar (D', Fig. 22), which is inserted into the screw (*i*) upon the upright pillar (H). Large dogs may be secured upon Bernard's operating table. This consists of four long boards perforated with numerous holes, and joined together by hinges, so as to resemble an inverted W (M). The dog is laid in the trough in the centre. An ordinary table, however, answers well enough. The head of the dog may be readily secured by placing a wooden or iron bar, similar to that just described (C', Fig. 22), across the mouth behind the canine teeth. It should have a hole at either end. The head is held in position by passing tapes or cords through the holes in the ends of the bar, and securing them to the table. It is always well to lay such animals as rabbits and guinea-pigs upon cushions. These may be made of vulcanised india-rubber, stuffed with horsehair. In addition to contributing to the comfort of the animal, they prevent movement to a very considerable extent.

FIG. 23.



Czermak's apparatus for holding the head of a rabbit, &c. A, Bar which fits over the superior maxillary and nasal bones. B, Bar which is placed under the lower jaw. C, An iron pin which is placed behind the incisor teeth. It is held in position by being pushed through holes in the processes *a* and *a'*. A little tooth (*c*) passes into a slit in *a*, and secures the rod. The jaws are placed between A and B, and are closed by screwing *f* so as to approximate A to B. *g*, Slit into which the screw *f* passes. *e* and *e'*, Two processes which fit into holes in the end of a forked rod (D, Fig. 22).

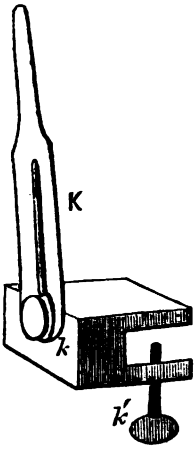
FIG. 24.



A, The superior maxillary bar. B, The inferior maxillary bar of Czermak's rabbit-holder. The bar B passes within the bar A (see Fig. 23); the holes *b* and *b'* passing over the perforated processes at *a* and *a'*. The screw *f* passes into the slit *g*. *e* and *e'* are referred to under Fig. 23. (The letters are the same as in Figs. 22 and 23.)

It is often necessary to place near the animal some support, to hold, e. g., a tube for artificial respiration, or one connected with a canula in an artery, &c. When Czermak's table is employed this support may be readily given in any position by screwing to any part along the side of the table a block (*k*, Fig. 25) which bears an upright metal rod (K). The rod has in its lower part a long slit, and is fixed to the block (*k*) by means of a screw passed through the slit. The slit permits of the rod being secured at any convenient height. A pair of forceps or other apparatus suitable for securing objects may be connected with the head of the rod (K).

FIG. 25.



Apparatus which may be fixed to the table of Czermak's rabbit-holder by means of a screw (*k'*). K, an iron rod, fixed by a screw to a wooden block (*k*). Forceps and other apparatus are attached to the head of the rod (K).

Note.—As some readers may be puzzled to know why these lectures are headed Practical Physiology, it may be well to explain that I have for some years been teaching Practical Physiology on the following plan:—The class is divided into three sections—I. Practical Histology; II. Practical, Physiological, and Pathological Chemistry; and III. Experimental Physiology. In Section I. every student works with his microscope. He demonstrates, draws, describes, and mounts the various tissues of the body. In Section II. he performs the qualitative analyses of most of the fluids and solids of the body, together with the quantitative analyses of the urine. In Section III. he merely assists me in performing experiments such as those detailed in these lectures. Section III., chiefly consists of demonstrations made by the teacher with the aid of the students. The teaching in this section is, of course, not *practical* in the truest sense of that term. Some are inclined to advise that in experimental physiology every student should perform all the experiments. I have to some extent tried this, but was compelled to abandon it. It is impracticable, and for various reasons unadvisable. As far as I am aware it is not a mode of teaching experimental physiology adopted in any school in Europe. I think we do enough if we show students how to perform physiological experiments, and afterwards superintend and guide the attempts of the few who may desire to undertake any research with a view to discover new facts.—

W. R.

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A Course of Lectures

ON

DISEASES OF THE BREAST.

Delivered at the Hospital for Women, Soho.

By Christopher Heath, F.R.C.S.,

Surgeon to the Hospital for Women, and Assistant-Surgeon to University College Hospital.

LECTURE II.

THE SIMPLE TUMOURS OF THE BREAST.

Gentlemen,—In my last lecture mention was made, incidentally, of collections of milk occasionally occurring in the ducts or sinuses around the nipples, and commonly known as lacteal tumours, the treatment of which is sufficiently simple. There is, however, another and more serious form of cyst in the breast containing milky fluid or its remains, which is occasionally met with, and which is known as *galactocele*. These milk-containing cysts occur during lactation, and undoubtedly depend upon obstruction and dilatation of one or more of the milk-ducts in the substance of the gland. They are slow in progress, and may exist during many months before they come under the notice of the surgeon; and there seems little doubt, from the researches of M. Forget, that, when of large size, the over-distended tube gives way, and the wall is formed by the breast-substance. The tumours present all the ordinary signs of fluctuation, &c., when of large size and near the surface; but are very difficult of diagnosis when deeply seated. The size they may attain to is well shown by one of the earliest cases on record—namely, that of Scarpa,—in which the tumour measured more than thirty inches round, and gave exit to ten pints of milk when punctured with a trocar. The contents of a galactocele may not, however, always be fluid milk; for a process of absortion of the watery portion of that fluid occasionally occurs, and a creamy or even cheese-like mass is consequently left, of which last an example is to be seen in Guy's Hospital museum.

The treatment of the simple collection of milk around the nipple is to lay it open, and the same treatment will be most effectual in the case of the other form of galactocele, if near the surface. If deeply situated, however, it will be well to try the effect of an oblique puncture with a trocar and canulà, by which the contents will be evacuated; when possibly, as suckling ceases, the cyst will heal up. Extirpation of the cyst is the last remedy.

Quite irrespective of lactation, however, cysts may be developed in the breast; and though occasionally single, they are more often extremely numerous, and are scattered through the gland, as may be seen in the specimen before you. In considering pathology of these cysts (the sero-cysts of Brodie, or the improperly called hydatids of Cooper), we find almost as much contradiction between observers as on the allied subject of cysts in the kidney. You will remember that two opposite theories are held with regard to renal cysts, Rokitansky and Simon maintaining the formation of these cysts from an enlargement of the cells or primary anatomical elements of the kidney, whilst George Johnson and Gairdner uphold their formation from obstructed ducts only. In the same way Birkett maintains the formation of cysts of the breast by obstruction and dilatation of the minute ducts, whilst Broca strongly upholds the formation of new cysts in the substance of the gland itself, and Virchow believes in both methods of formation. Mr. Birkett believes that, a duct happening to become obstructed the walls become dilated or varicose, whilst the portions of the duct between the dilatations become contracted and eventually obliterated. The tortuosity of the ducts would thus account for the numerous and closely adjacent cysts so often seen, and the different angles at which the ducts would be cut in a section of the gland would account for the difference in the shape of the cysts. On the other hand, M. Broca ("Traité des Tumeurs, ii., p. 84) maintains that all the cysts, whether large or small, are independent of the ducts, and that were they derived from the ducts the smallest cysts could not have the completely spherical form which is common to them, but would be more or less tubular or ellipsoidal. M. Broca allows, however, that the larger cysts may be due to obliteration of the ducts, and I think the point already mentioned with regard to the angle of section of a tube may explain the globular appearance of the small cysts. Most museums contain specimens of the disease, and the illustrations given in the plates of Sir Astley Cooper's work, which is before you, sufficiently elucidate the subject, although all forms of cyst were erroneously classed together by that eminent surgeon under the term "hydatids."

I am inclined to think that, whatever may be the origin of the numerous cysts which are found scattered through the breast, there can be no doubt that the large single or multiple cysts found in the neighborhood of the nipple depend originally upon an obstructed duct; and hence the term "duct-cysts" given by Mr. Birkett in his recent essay in "Holme's System" is an excellent one. That these cysts are true duct-cysts is proved by the fact that frequently by the exercise of gentle pressure some of the fluid may be forced out from the nipple, or may even flow from it spontaneously. This fluid is usually of a viscid, mucoid character, and varies in color from straw-color to a greenish-brown. The progress of the tumour is slow and painless, and, if near the nipple, the diagnosis of fluctuation is easy; but if the fluid is deep, and therefore difficult of recognition, recourse should be had to an exploring trocar or needle in order to clear up the doubt. It is to be borne in mind that cysts occasionally coexist with cancerous tumours, and therefore the presence of fluid or its extrusion by the nipple is not a certain proof of the innocent character of the disease if there is a distinct tumour left when the cyst has been emptied; or cancer may develop in a breast the subject of cystic disease for many years, as in a case recorded by Mr. Erichsen.

The treatment of these duct-cysts is unsatisfactory, unless complete removal of the cyst is performed. Last autumn I attended, with Dr. Whitmarsh of Hounslow, a case of the kind in the breast of an unmarried patient who had been subjected to a variety of treatments, including injections and laying open the cyst, without benefit. I dissected out the cyst, and then found that its interior was lined with long papilliform growths of granulations, the result, no doubt, of irritation, but which effectually prevented any contraction or closure of the cyst. When the cysts are numerous, amputation of the breast will be required.

The *sero-cysts*, so well described by Sir Benjamin Brodie, may be found in any part of the breast, and are of very variable size. They are well represented in Plate 1 of Sir Astley Cooper's "Illustrations of Diseases of the Breast," and are also seen in the preparations before you. The fluid contained in the smaller cysts is generally viscid and gelatinous, though clear; but in the larger cysts it is usually serous and limpid; and the evidence of fluctuation when near the surface is more distinct than in the case of the duct-cyst. Even in the smallest cyst a distinct epithelial lining will be found, and Broca relies upon this fact as conclusive of the fluid accumulating in a glandular cavity. When the cysts become much enlarged, the epithelial lining ceases to be continuous, but evidences of its existence are always present. The progress of the disease is slow and painless as a rule, and it may subside altogether under treatment. This consists in the ordinary discutient applications, such as iodine, iodide of potassium ointment, &c., or the lotion of camphorated spirit and lead recommended by Brodie. If the skin over the cyst becomes thinned, evacuation of the cyst should be performed, when, if it does not close, it may be removed, or, in the case of numerous cysts, the breast must be removed.

The true *hydatid cyst* is of rare occurrence in the breast, Sir Astley Cooper giving only one real and one doubtful case, and Mr. Birkett having seen but two examples. The parasite is the ordinary acephalocyst, containing numerous echinococci floating in clear fluid, and is usually single. There are no means of distinguishing this from any other cyst, except by a microscopic examination of the fluid, when the characteristic hooklets of the echinococcus would be readily identified. Removal of the cyst (of which a drawing is given by Sir A. Cooper), and even removal of the breast itself, has been practised in these cases; but seeing how effective experience has shown the simple operation of tapping the cyst to have been in destroying the parasite and causing shrinking of the cyst in the case of the liver, it is not unreasonable to suppose that similar good results might follow a simple evacuation of the contents of the cyst in the breast; and I should certainly give the plan a trial in any case of the kind that came before me. In the museum of the Middlesex Hospital is a specimen of hydatid cyst which occurred in the practice of Mr. Mitchell Henry, and was found between the breast and the pectoral muscle, and adherent to both.

Sero-cystic sarcoma was the name given by Sir Benjamin Brodie to a form of disease which he first accurately described, although it is doubtless the disease referred to by Sir Astley Cooper as one of the forms of "hydatid" tumour of the breast. According to Brodie the disease begins by the formation of a cyst containing serous fluid, from the interior of which a solid growth takes place filling up the cavity of the cyst more or less completely. By the gradual development and pressure of these intra-cystic growths, the skin covering the tumour may become thinned and ulcerated, and eventually a fungoid growth may protrude. This filling-up of the cavity is, however, by no means of constant occurrence; and not unfrequently large cysts are found in connexion with sero-cystic sarcomata, as in the drawing I show you from Sir A. Cooper's "Illustrations of Diseases of the Breast." This intra-cyst growth has been accepted by Mr. Paget as the correct explanation of tumours of the class described by Brodie; but he has put them under the heading of "proliferous mammary cysts," and has variously described the contents according to their shape, size, and color. These growths are generally allowed to be glandular in their origin; though in some cases, according to Paget, it is impossible to verify this fact microscopically. The researches of MM. Verneuil and Broca have, however, thrown some doubt upon the theory of the cystic formation of these tumours, as also of the denser form generally recognised as the chronic mammary tumour, of which I shall have presently to speak. According to these authors the glandular nature of the growth within the cell is undoubted; for the pedicle by which it is attached in all cases to the gland contains evidence of glandular continuity, under the microscope, in the form of long and straight tubes, filled with epithelium. They would, therefore, regard the disease as a variety of *adenoma*, or true glandular tumour, and the cyst as an accidental addition. The fact that, in many cases of sero-cystic sarcoma, the cyst is out of all proportion to the growth, may be held to support the latter view.

Fortunately for the practitioner, whatever may be the true pathology of the disease, its course and treatment are sufficiently ascertained. A disease of adult life, and most frequent in married women, cystic sarcoma is a slow-growing and generally painless affection, giving evidence of the existence of fluid at various parts. The size to which the tumour may develop is well shown in the drawing before you of a patient from whom I remember seeing Sir William Fergusson remove a breast weighing 19 lb., and whose likeness is given in his "Lectures on the Progress of Surgery." The fungous protrusion through the skin seen in her case is one of the common features of the disease in its later stages, and this doubtless led many of the older surgeons to confound this growth with other forms of fungus under the common term "fungus hæmatodes." The cystic sarcoma is not, however, a cancerous disease, although it may prove fatal by exhausting the patient's strength and vital powers;

there is in connexion with it no infiltration of the lymphatic system, nor any secondary deposit. At the same time, it cannot be denied that cystic sarcoma has a tendency to recur, as in the case of Sir William Fergusson's already referred to, and in a case recorded by Mr. Cæsar Hawkins, where recurrence took place eight times. This recurrence is in all probability due to the increase and growth of some minute portion of the original growth which has escaped detection at the time of the operation. The obvious treatment, therefore, is to remove the entire breast in these cases, for nothing less will relieve the patient permanently.

I pass on now to a form of tumour of the breast, the glandular structure of which is generally admitted—the *adenoma* or *adenocele*, more familiarly known as the *chronic mammary tumour* of Sir Astley Cooper. This is usually an affection of early life—i.e., between eighteen and thirty years, and occurs more frequently in the single than in the married woman. The tumour is often traced, or supposed to be traced, to some slight injury to the breast, the patient discovering a growth in the organ soon after having sustained some blow on the part. The pathology of this form of tumour is well ascertained, and it consists in a local hypertrophy of one of the lobules or *acini* of the breast, microscopic investigation showing a development of the true gland tissue, and engorgement of the minute tubuli with epithelioma. At the same time there is a varying development of the fibrous or connective element, and thus some of these tumours in the Hunterian Museum were originally described by Paget as "fibro-cellular," on account of the disproportion of the connective to the glandular structure; whilst Broca describes as a separate class the "adenoma with predominence of stroma." According to Paget, the adenoma is developed from the interior of a cyst; but he remarks that "if all the mammary glandular tumours are of intracystic origin, it must be admitted that many of them very early lose the cystic form, and continue to grow as solid masses, for we find them solid when very small." The more recent researches to which I have already referred throw doubts, however, upon the intra-cystic development of these tumours; and as their close connexion with the true glandular structure of the breast is undoubted, though to some extent encapsuled, they are probably not cyst-growths. The progress of the tumour is slow, and for the most part painless, and would probably attract but little attention were it not for the fear of cancer of the breast so constantly present to the female mind. Although generally single, more than one adenoid tumour may occur in the same breast, as in a single woman now under my care, in whom there are three small tumours at the lower part of the breast. Adenoid tumours have been met with large enough to weigh ten pounds; and occasionally, after being stationary for years, they undergo a sudden and rapid increase. When of large size they are apt to undergo a process of softening, and then, should the skin give way, an outgrowth of fungus may protrude, identical in its nature with the benign fungus already mentioned in connexion with sero-cystic sarcoma.

The diagnosis of this chronic mammary tumour is most important, and in many cases difficult. Undoubtedly, many cases of adenoma have been taken for scirrhus, and many of the vaunted cures of cancer depend in all probability on a similar mistake in diagnosis. The youth of the patient (for cancer of the breast is rare before thirty, which is the favorite period for the simple tumour), the mobility of the growth, the absence of the stabbing pain so characteristic of cancer, the healthy and non-retracted condition of the nipple and neighboring skin, are all in favor of the adenoma. Another diagnostic sign of some value is the occasional occurrence of a sero-sanguinolent discharge from the nipple when the tumour is situated near that part; but, as already mentioned, this occurs in other growths besides the glandular tumour. The occurrence of cysts in connexion with adenoid tumours must not be lost sight of, and their occurrence would render the diagnosis of a simple tumour more easy.

The appearance of these glandular tumours soon after the establishment of the menstrual function, and the undoubted fact that they not unfrequently disappear after marriage, during pregnancy, or during lactation, point to some intimate connexion between the occurrence of these growths and the state of the uterine functions; and experience shows that the two organs, the breast and the uterus, have much in common. A transitory hardness and swelling of the breast is not at all uncommon at the period of puberty, when the menstrual function is first established; and we find a few years later that the same sympathy exists. Patients suffering from adenoma of the breast will be found, on inquiry, to be often irregular, and frequently to be suffering from dysmenorrhœa or from some congested condition of the womb. A patient now under my care, who was sent to me for a supposed scirrhous tumour, which, however, was a rather hard adenoma, is suffering from retroflexion of the uterus, and her breast and uterus are returning to a healthy condition *pari passu*. This is not the time to enter into the treatment of uterine affections; it will be sufficient to say that your attention must be directed to them, and not concentrated solely on the breast.

With regard to the treatment of a tumour of the breast, one great point is to protect it from the anxious inspection and manipulation of the patient, who is apt to keep up constant investigation in order to ascertain its growth or diminution. In recent and slight cases of glandular enlargement, therefore, I simply employ a piece of belladonna plaster to cover the growth and the healthy tissue around it for a short distance. This should not be removed oftener than once a week; and, if persevered in for a few weeks, during which the general health and uterine functions are looked after, no further treatment may be required. Should the disease be of longer standing, however, it may be necessary to apply absorbents directly to the tumour, and for this purpose I prefer the iodide of lead ointment to any of the preparations of iodine, which last are apt to irritate the skin. The ointment may be conveniently applied beneath an opiate plaster spread on leather, and over it pressure may be applied either by bandage or strapping, a pad being used over the growth itself. A convenient method of applying pressure with plaster is to use two straps, one a little wider than the other, and, having fixed them on opposite sides of the breast, to pass the end of the narrower one through a cross slit in the other, so as to make pressure on the tumour when they are drawn together. Another good plan is the "dove-tailed strapping" described by the late Mr. Maurice Collis, the two straps being cut so as to fit one another, as shown in the specimens before you.

The good effects of continued pressure in cases of adenoma are undoubted; and in many cases of small size absorption will be produced, and in others a diminution of the tumour may be effected, though it does not follow that the growths may not enlarge again. It is the glandular element which is principally affected by this and other forms of treatment, and a small, hard mass, sometimes left after successful compression, is composed almost entirely of the fibrous stroma of the tumour. Hence, also, the harder and more fibrous forms of adenoma are unsuitable for compression treatment.

When an adenoma is increasing in size, or even when stationary if it is painful and worries the patient, excision is the best remedy. The operation is a simple one, for it is only necessary to remove the growth, and not the entire breast; and if the tumour be carefully fixed with the fingers, so as to render the skin tense, a simple incision carried down to it at once will allow the mass to be readily enucleated without injury to the breast, if sufficient traction with the fingers or forceps be made on it. The wound usually heals readily, and the patient is at once relieved of her burthen.

The *irritable breast* of Sir Astley Cooper includes two forms of disease: one where there is neuralgia of the breast without any tumour; and the second, where a painful tumour exists. In the former class the neuralgia depends in all probability on constitutional causes, and may be connected with the uterine function; and appropriate general treatment must be adopted. In these cases it is not unusual to find a general slight induration of the breast, but no distinct tumour. The cases of painful tumour are for the most part examples of chronic mammary tumour which have become painful; but other diseases of the breast of a simple character occasionally display the same tendency. The treatment for a painful adenoma would be the same as for the ordinary form of the disease—viz., sedatives and compression; but should the pain remain persistently, an early removal may be advisable. The possible occurrence of a neuroma or painful subcutaneous tubercle on one of the filaments of nerve in the mammary region must not be entirely overlooked, though its occurrence appears to be exceedingly rare.

In addition to these, which may be termed the common tumours of the breast, there are a few others occasionally met with. Thus, a true fibroid tumour of the breast is occasionally found; and so also the fibro-cellular tumour, of which a good example is recorded by Mr. Bryant in the Pathological Society's Transactions, vol. xix. A recurrent form of fibroid has also been met with in the breast; but of this I shall speak in connexion with the cancerous growths.

Another form of fibrous disease is that described by Virchow as diffuse fibroma of the breast, or, as it has otherwise been called, benign induration of the breast. This consists in at first a painful enlargement of the whole organ, followed by a contraction of the interstitial fibrous tissue and atrophy of the breast-substance. Virchow compares this to the interstitial inflammation met with in the lungs, liver, and kidneys, and figures a section of a kidney with white fibrous masses in it. Now, we have learnt of late years, and chiefly from the labors of Dr. Wilks, that fibroid deposits in various organs are the result of syphilitic infection, and I am inclined to think that this condition may occur in the breast.

Since writing the above, I have found that, though English authorities are silent upon the subject of syphilitic disease of the breast, yet it has been recognised in France for some years. Lancereau, in his work on Syphilis (Sydenham Society's translation, vol. i.), recognises two distinct forms of syphilitic disease of the breast—the diffused or *syphilitic mastitis*, and the circumscribed or *gummy mastitis*. An Italian surgeon, Dr. Ambrosoli, has also described three cases of the diffuse form of the disease. The gummy tumour of the breast is liable to be confounded with adenoma, and has no doubt been removed for it. A specimen removed from a man by M. Verneuil resembled in its structure a softened encephaloid growth, and exuded a creamy fluid on pressure. Fortunately, in most cases of the kind, the formation of similar tumours in other parts of the body would assist the diagnosis: but where there is evidence of infection of the patient's system (and, for myself, I always believe in such an infection where there is a history of frequent abortions, even without other evidence), a trial should be given to the administration of the iodide of potassium in large doses, and the local inunction of mercurials.

A still rarer form, or at least little recognised form of disease in the breast, is the *myxoma*, or mucous tumour of Virchow, a soft gelatinous growth, often confounded, no doubt, with colloid disease.

LECTURE III.

THE RECURRENT AND MALIGNANT TUMOURS OF THE BREAST.

Gentlemen,—In the present lecture I propose to describe those more serious forms of breast disease which tend to destroy life, either by their constant recurrence, or by involving the patient's system and producing a specific cachexia. I avoid the word "cancer," because it is so difficult to define accurately what is meant by the term. If microscopic evidence alone is to be relied on, many growths will be put down as cancer which the clinical history will exclude from that category; and even the highest authorities are not agreed as to whether undoubted cancer is a local manifestation of constitutional taint, or whether the disease is at first purely local and the constitutional affection a consequence of the local mischief. I should be inclined to group together under the term "malignant" both the forms of disease I have mentioned whose tendency is directly to destroy life, reserving the word "cancer" for those tumours which, in addition to naked-eye and microscopic appearances generally recognised as characteristic of that disease, have a clinical history showing progressive infection of the lymphatic system, leading to secondary deposits and a constitutional cachexia.

The *recurrent fibroid* or *fibro-nucleated tumour*—the chief characteristics of which are a close external resemblance to the ordinary fibrous tumour, but a tendency to recurrence after removal, with a progressive softening of successive growths—is occasionally found in the breast, and an excellent example of it has recently been put on record by Mr. Nunn. (Path. Soc. Trans., vols. xviii. and xix.) The tumour was developed in the right mamma, and measured 23½ inches in circumference, weighing 4 lb. 12 oz., after removal. The patient was twenty-eight years old and the mother of two children; and the tumour had grown in two years, ulcerating through the skin at the centre of the growth fourteen months after it was first perceived. There was no enlargement of the lymphatic glands. The tumour was removed in March, 1867; and the patient made a good recovery. The tumour was lobulated and its structure fibrous, with spindle-shaped cells in abundance. Towards the end of May the patient discovered a fresh outgrowth; and on her readmission to hospital in July a mass the size of two fists was to be seen at the site of the original tumour. On July 31st Mr. Nunn repeated the operation, but it was evident at the time that the disease had extended through the intercostal spaces and could not be entirely removed. Fresh sprouting of the growth occurred, and the patient died exhausted on October 23rd of the same year. At the post-mortem examination, no secondary deposit in internal organs was found, but the tumour was seen to have invaded the pleural cavity, forming rounded protuberances underneath the costal pleura. Microscopic examination showed the tumour to be composed of filamentous tissue abounding with nuclei, and such as would be generally classed as a fibro-nucleated tumour.

The experience of these recurrent tumours in other situations besides the breast is conclusive as to the necessity for complete and early removal, and therefore nothing less than the removal of the entire breast should be thought of when any recurrence of an apparently simple tumour takes place. Even then the prospects of the patient are as gloomy as in true cancerous disease; for the growth is almost certain to reappear, and to destroy the patient, either by the exhaustion of repeated operations or by involving the pleural cavity.

The *myeloid tumour*, whose characteristic is the large multi-nucleated cells resembling those of the fœtal marrow, is found much more frequently in connexion with bones (and especially the jaw-bones) than in the mamma. Doubts have been thrown upon the return of myeloid tumours; but, from what I have seen in the case of the jaws, I have no doubt that myeloid tumours are frequently, though not constantly, reproduced. I have never met with a case in the breast, and must therefore content myself with referring to one recorded by Mr. Paget. The patient was fifty years of age, and had an irregular tumour, between two and three inches in diameter, in her left breast, which had existed for nine months. On removal, it proved to be myeloid; and eighteen months later the patient returned with a large ulcerated tumour in the corresponding axilla, from which she died.

The forms of Cancer occurring in the breast are, scirrhus, medullary, and colloid; and their frequency agrees with the order in which I have placed them, scirrhus being more common than medullary disease, and colloid cancer being of rare occurrence.

Scirrhus or *hard cancer* is rarely seen before thirty years of age, and may appear at any period after that, but about fifty is the most common age for the disease to show itself. Unmarried woman appear less liable to the disease than married woman. Thus, of 260 cases of scirrhus given by Mr. M. Baker, 23 per cent. were in single woman, 72 per cent. in married women, and 4 per cent. in widows; and consequently, as Mr. Paget remarks, the percentage among single women is smaller than in the female population generally. Commencing as a small nodule, so painless at first that it is often overlooked for some time, the disease slowly increases in the majority of cases, though occasionally, in what has been termed acute scirrhus, the increase is rapid. Soon, as a rule, pain is experienced in the tumour, of that peculiar lancinating or stabbing character which is often looked upon as a pathognomonic; but it must be remembered that absence of pain is by no means conclusive as to the non-malignancy of the tumour, since some cases of scirrhus run their course with little if any suffering. As the tumour increases, the tendency to involve and drag upon the surrounding tissues is developed: and thus, if the disease is central, the nipple becomes retracted and fixed; or if peripheral, the skin overlying it is bound down and dimpled. Lymphatic enlargement now takes place, the glands along the axillary border of the pectoral muscle being those ordinarily affected, though the glands above the clavicle are also liable to infiltration, particularly when, as Sir Astley Cooper has remarked, the original disease is on the sternal side of the nipple, so that the internal mammary lymphatics become the means of conveyance of the morbid material.

Ulceration of the retracted skin is the next pathological feature, and there is, I think, more variation in this than in any other part of the disease. In some cases the ulceration is so slow, and the consequent discharge so slight, that the patient is able, for months and even years, to conceal her malady from her nearest relatives and friends; whilst in others the ulceration proceeds with rapidity, and extends either widely or deeply—for it rarely does both. The depth to which scirrhus may penetrate is of course limited only by the pleural cavity, perforation of which has been often witnessed: but to the extent to which scirrhous ulceration of the skin may reach there is really no limit save the vital powers of the patient. Thus, a fortnight since, I saw a woman, in very fair general health, with an enormous ulcerated surface on the chest and axilla of the size of a plate, which showed no tendency to become arrested but by the death of the patient.

By the time the skin over a scirrhous breast has become at all extensively ulcerated there will in most cases probably be some amount of constitutional cachexia produced, particularly if enlargement of the lymphatic glands has been an early symptom in the case. Added to this, we have the œdematous and painful condition of the arm due to obstruction of the axillary vein by the cancerous deposit; and the patient is at last worn out with the pain and suffering acting upon a lowered vitality. The duration of a case is affected very much by the age and constitution of the patient, its course being slower in the older and less plethoric individual; but the dictum of Sir Astley Cooper may be considered a fair one, taking the average of cases—namely, two years for the full development of a scirrhous breast, and from six months to two years longer for a fatal termination to the case. Instead, however, of running its ordinary course, the disease may become arrested in its progress by a form of atrophy, and the patient may then live for years, and die from disease unconnected with the breast. It is, so far as I have seen, in thin elderly women that this atrophic scirrhus is found; and it may happen, as in a case recently under my care, that the disease will suddenly light up afresh, as it were, and its renewed activity will require immediate operative interference.

In these cases, and also in other cases of scirrhus, particularly (in my experience) those in which the primary disease has been removed with success and without return in the breast, we meet with growths of cancer in internal organs—such as the liver, stomach, or uterus,—which may be taken as evidences of a constitutional taint consequent upon or antecedent to the primary disease, according to the pathological creed of the surgeon. Development of cancer in an internal organ is, however, ordinarily so much less painful a cause of death than open cancer of the breast, that this well-known liability to the development of internal cancer ought to form no bar to operative interference in suitable cases. In addition, moreover, to these well-recognised positions of cancer, I have once seen a patient, whose breast had been removed some months before, covered all over with small cancerous tubercles of the skin, varying in size from a pin's-head to a medium-sized button; and as there was ptosis with strabismus on one side, together with symptoms of brain disturbance, I have no doubt that a cancerous tumour was developed in the brain which pressed upon the third nerve, though I was unable to procure a post-mortem examination.

Medullary cancer is much more rapid in its course than scirrhus, often destroying life in a few months. As might be expected from the differences in structure of the two growths, the medullary tumour is larger, softer, and more succulent than the scirrhous cancer. Its tendency to infiltrate the neighboring tissues is much greater; and hence, when the skin gives way, it is by a process of sloughing, or very rapid ulceration, leaving a chasm through which protrude masses of soft bleeding cancer, giving the appearance characterised as true *fungus hæmatodes.* Any rapidly-increasing solid tumour of the breast must be viewed with suspicion, and more particulary if the veins running over it are much engorged, and if there is enlargement of the neighboring lymphatic glands. In this form of disease there is much greater probability of a development of secondary tumours in other parts of the body than in scirrhus; thus not unfrequently patients suffering from medullary breast are carried off by some acute chest attack, when secondary deposits are commonly found in the pleura and lungs.

Colloid cancer is exceedingly difficult of recognition prior to removal—in fact, almost all the examples of it have been mistaken for some other disease. The disease wants the hardness which is so characteristic of scirrhus, and is less rapid in its growth than medullary cancer, the lymphatics being also more slowly affected. A good example of colloid tumour of the breast, with a secondary tumour in the axilla, of five years' growth, is recorded by the late Mr. Price in the 8th volume of the Pathological Society's Transactions, and has appended to it an elaborate report upon the microscopic structure of the growth, by Dr. Andrew Clark.

A section of a recent scirrhous tumour shows a dense white structure, the fibrous nature of which is at once obvious to the naked eye. On scraping it a whitish juice exudes, and this under the microscope shows an abundance of cells, with nucleus and nucleolus, which may be considered to be the so-called cancer-cell. I have the advantage of showing you Mr. Arnott's beautiful drawing of the microscopic appearance of scirrhus, and I cannot do better than quote his own description. The drawing shows "the typical form of hard cancer—i.e., cells of an epithelial type, of varying size and shape, but with tolerably uniform (and usually single) large nuclei closely packed in the meshes of a stout fibrillated stroma, without any visible cellular elements." The proportion of cells to the fibrous stroma it is that determines the character of the growth, for if the cell element preponderates over the fibrous, we have the more vascular form of medullary cancer or encephaloma; whilst if the cells have degenerated, and the fibrous interspaces are filled with a little fatty fluid only, we have the atrophic scirrhus.

There is, then, no special microscopic appearance by which medullary cancer can be distinguished from scirrhus, except by considering it as a whole, and here the naked-eye appearances and clinical history assist us much. The brain-like texture, the great vasculity, and the rapid growth and invasion of surrounding structures, enable us to recognise encephaloma in almost all cases. It is remarkable, as showing how one form of cancer runs into the other, that the secondary deposits in the axillary glands and internal organs after scirrhus of the breast partake more of the medullary or soft form of cancer than the hard; and, in fact, Mr. Arnott's illustration, which I show you, is taken from an axillary gland. This fact is not so surprising, however, when we find that, as the recent researches of MM. Cornil and Ranvier have shown (by means of nitrate of silver as a reagent), the lymphatics communicate directly with the interspaces in the fibrous stroma of scirrhus in which the cells are lodged. It is not surprising, therefore, that the cell element should predominate in the secondary deposits thus produced.

The structure of colloid cancer is unmistakable, a section showing the loculi filled with gelatinous material of various shades of color which are so characteristic of the disease. Microscopic examination shows a delicate fibrous stroma, enclosing in its meshes cells, of which some are round or oval, mononucleated, and having within the outer cell-wall several very delicate concentric lines, giving to the cell somewhat of an oyster-shell appearance (H. Arnott). Other large polynucleated cells are found, and also an arrangement of the stroma in concentric circles, enclosing a number of nucleated cells, and having nuclei interspersed among the concentric layers of tissue.

Few persons in the present day would deny the hereditary nature of cancer, though the late Mr. Charles Moore held that the disease "should rather be styled heritable than hereditary," since he believed that the failures in transmission were more numerous than the occurrences. Yet Paget records that of 322 cancerous patients there were 78, or very nearly one-fourth, who were aware of cancer in other members of their families. And there are many well-known cases of numerous members of one family being affected with cancer, of which perhaps the best example is that recorded by M. Broca, of a family, in five generations, of which sixteen persons out of twenty-six died of cancer in its various forms. General experience may, I think, be fairly summed up in Mr. Paget's words: "Every year's experience in practice among persons whose family histories are known makes me more sure that inheritance is the great power in the production of all diseases that are not of distinctly external origin, and among these of cancer."

The transmission of cancer is not necessarily to the same organ as in the ancestor; in fact, Mr. Paget's tables go to show the contrary to be the rule, for of 61 cases, in only 27 the cancer in the descendant was in the same organ as in the direct ancestor, whilst in 34 it was in a different part. On the other hand, many cases have been known of the same organ being affected in many members of one family—e.g., the Middlesex Hospital case of a mother and five daughters all having cancer of the left breast. A remarkable fact in this case too is that each daughter was successively attacked at an earlier age than the one next above her, the disease appearing to increase in intensity in the children as they were born nearer the time when the disease showed itself in the mother. In other cases, where the disease has been traced through three generations, it has been noticed that the daughter was attacked at an earlier age than her mother, and she again than the grandmother.

Mr. Moore, in his paper on the "Antecedents of Cancer," endeavored to show that the elder children of a cancerous mother were more liable to the disease than the younger ones; but this is contradicted by the statement given above, for it is evident that the children born nearest the outbreak of cancer in the mother would be most likely to inherit the constitutional taint. Moreover, although it may happen that in a given number of cases the elder children are affected, it must be remembered that, having been born when the mother was in good health, they have had stamina sufficient to live long enough for the cancer to show itself, whilst their younger brethren have possibly died before the disease appeared. Mr. Moore's observation, if correct, that cancer affects the otherwise healthiest members of a family, would confirm this view, for a certain amount of healthiness is essential for the longevity required for the development of cancer in the elder members of a family.

Cancer of the breast is by no means incompatible with pregnancy. Thus in the early part of 1869 I was consulted in the case of a patient who had advanced cancer of one breast, and also a tumour (doubtless cancerous) of the ilium, who was pregnant. She went her full time, and gave birth to an apparently healthy child, which is now alive and well, and has survived its birth five months. The prospects of a child born under such circumstances one must conclude to be very bad, and he is the youngest of a large family, all apparently in good health. Women have been known even to suckle with a cancerous breast, but such a practice ought not to be permitted by the surgeon. An interesting example of a scirrhous tumour, complicated with lacteal tumour from this cause, has been recorded by Mr. John Wood. (Pathological Transactions, vol. xix.)

The treatment of cancer of the breast must necessarily be influenced by the opposite pathological views already referred to. The surgeon who holds that the local tumour is merely an evidence of constitutional dyscrasia will busy himself with endeavoring to counteract the morbid conditions of the system by medicines, and will be content to leave the local manifestation alone, or at most endeavor to disperse the local mischief. With this object he may employ iodine locally, and internally in the form of iodide of potassium; he may apply bromine in the form of a tincture (as recommended by the late Mr. Colles) to enlarged glands or infiltrated skin, and give the bromide of potassium internally; he may apply cooling lotions or freezing mixtures to the tumour, in order to retard its growth, or may make use of pressure in its varied forms to procure possible absorption; and he will almost certainly be disappointed, and find that the disease makes unmistakable and fatal progress notwithstanding. I say nothing of the various orthodox and quack plasters which are from time to time recommended for the *cure* of cancer, for the subject is beneath notice. At this very moment there is, I know, a foreigner in London who professes to have discovered the long-looked-for "cure-all," and has been allowed, I regret to hear, to try his discovery on the patients of one metropolitan institution, but without any special result.

On the other hand, if the surgeon is convinced that the disease, although the result of hereditary taint, is at first localised in the organ it attacks, but tends to spread in the tissues and affect the system generally through the lymphatics, he will endeavor to rid his patient at as early a moment as possible of the source of mischief, and will thereby, in my opinion, be giving her the best chance of prolonged life and comfort. Of course there are cases in which no judicious surgeon would advise any local interference at all; and it will be convenient, before considering the methods of operating on cancerous breasts, to note what are the circumstances favorable and unfavorable for such interference.

The most favorable concatenation of circumstances is when in a middle-aged patient, of robust health and moderate *embonpoint*, there is a small scirrhous tumour in the neighborhood of the nipple, which, though retracted, is not ulcerated, while the skin over the breast is healthy and loose, and the axillary and cervical glands are unaffected. From this standard every degree of divergence is met with, and since every surgeon must use his knowledge and experience in deciding as to each individual case, it necessarily follows that differences of opinion will arise in certain cases even among the most distinguished surgeons. There is, however, little difficulty in arriving at the opposite extreme—i.e., the cases which ought *not* to be interfered with; and these by common consent are, rapidly-growing tumours, with great infiltration of the skin, and extensive implication of the glands; cases where other tumours exist, and particularly in the opposite breast; where cachexia is already well established; or where the skin is extensively ulcerated.

The question of local interference in diseases of the breast involves the more important and somewhat disputed question whether the tumour alone, or the entire breast, should be removed. If we believe that cancer has a tendency to spread through the neighboring tissues, and thus reproduce itself, it is obvious that a complete removal of the organ in which it commences is best, and I am astonished to find that in the present day there should be an attempted reaction in favor of excising the tumour only in cases of cancer of the breast. There may be cases occasionally where the disease is localised in the outer margin of the breast, and is in a very early stage, in which the patient is loth to submit to the more serious operation, and the surgeon may then be justified in excising the tumour, with some of the surrounding structures; but he should for his own credit's sake explain that the operation is necessarily an incomplete one.

It was pretended at one time that caustics could be applied so as to remove the diseased structures, and leave the healthy; but even the most ardent supporters of that method must allow that the tissues are destroyed indiscriminately by the chemical agents placed in contact with them. The advantages claimed for the caustic treatment by its modern upholders were, the diminution of risk to the patient, the painless character of the proceeding, and the more thorough removal of disease produced by it. With regard to the first point, the immediate danger of an operation (which in the case of the breast is but slight) is certainly obviated, but the after-risks are increased; the patient being liable to exhaustion from prolonged suffering and discharges, and also to the not unfrequent occurrence of inflammatory attacks on the chest, due apparently to the action of the caustic. In respect of pain, there can be no question of the balance being against the caustic, the burning wearing pain of which is infinitely greater than that experienced *after* an operation performed under the influence of anæsthetics; whilst the removal is really no more complete and thorough than can be obtained from a carefully performed operation, particularly if combined with the use at the time of some chemical solvent of the tissues, as recommended by Mr. De Morgan. The cases most suitable for the caustic treatment are open cancers and cases of recurrent growth, and the applications in most common use are the chloride and sulphate of zinc, made with flour into a paste, which should contain a small quantity of morphia so as to deaden the pain of the application. If the skin is not already ulcerated, it must be destroyed with nitric acid, since it resists the caustic paste. The caustic is best applied on strips of lint, and is pressed firmly against the sore. When the surface has become converted into a grey insensible mass, incisions are to be made through it into the living textures beneath, and into these cuts strips of lint, smeared with the caustic paste, are to be laid. By repeating this operation again and again, the entire breast may be caused to slough out, leaving a large wound, which takes many weeks to granulate up.

In amputating a breast, it is, I believe, most important to remove all skin, fat, and cellular tissue which may possibly contain cancer-cells; and if the growth is adherent to the pectoral muscle, there should be no hesitation in removing some depth of its texture, so as to be well beyond the influence of the disease. The incisions necessary for removing a breast cannot properly be limited to the ordinary elliptical incisions above and below the nipple; for the skin may be involved in other parts, and if any diseased portion is left the operation is useless. Any enlarged glands in the axilla should be removed at the same time; and there is, I find, no difficulty in clearing away all that is necessary in this region, without danger of hæmorrhage, by employing the finger freely to enucleate the glands, rather than by dissecting them out with the knife. The free use of a strong solution of chloride of zinc to the whole of the wound is, I think, decidedly advantageous in destroying any remnants of disease in the surrounding tissues; and the occurrence of suppuration during the process of healing seems to be of advantage, rather than otherwise, in the same direction.

The hesitation in removing sufficient skin, which has doubtless rendered many operations on the breast abortive, has to a great extent been obviated by the recent suggestion of M. Reverdin to transplant small portions of healthy cuticle from other parts of the body to the granulating sore left after a free removal of skin. The islands of skin set up by a successful skin-grafting of this kind certainly favor the healing of the wound, and obviate to some extent the painful dragging of the cicatrix so often seen. In a case of my own I was able to transplant five portions of cuticle from the arms to the granulating surface a fortnight after an extensive removal of the breast, and the case did remarkably well.

The results of operations for cancer of the breast vary of course considerably according to the nature of the case and the previous health of the patient. The operation itself is a remarkably successful one as regards immediate danger to life, although every surgeon must occasionally lose a patient after this, as after every other surgical proceeding, even the simplest. But, in stating the risk to a patient, one has the satisfaction of pointing out that in all probability great relief from immediate suffering will be obtained, and a possible immunity from return in favorable cases. With regard to the prolongation of life as influenced by an operation, professional opinion has undergone a change within the last few years. It was thought by many surgeons that, though comfort was gained by an operation, yet that life was shortened; but the elaborate tables of Mr. Sibley and Mr. Baker, published in the Medico-Chirurgical Transactions, show a different result. Mr. Sibley, whose statistics are drawn from the records of the Middlesex Hospital, states that, "in the cases of cancer of the breast, those who had been operated on lived 58 months, whilst those in whom the disease was allowed to run its natural course lived only 32 months." Mr. Baker, whose data are drawn from Mr. Paget's experience, says "the average length of life in scirrhus cancer is 43 months when the primary disease is not removed, and 55 months when the operation is performed; whilst in the case of medullary cancer the results are even more striking, being 20 months without, and 44 months, or twice the same time, with an operation." These results are sufficiently encouraging, and probably the statistics of operation cases may prove more and more satisfactory as both the profession and the public become convinced of the necessity for an early and complete removal of cancerous growths.

With regard to the average date of recurrence of cancer, the greater malignancy of the medullary cancer is again seen, that disease ordinarily recurring within one year, whilst scirrhus does not reappear till the second year, the average times given by Mr. Baker being nearly 14 months for scirrhus, and 7 months for medullary disease.

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NOTES FOR A
Clinical Lecture
ON
DISSECTION POISONS.

By James Paget, D.C.L., F.R.S.,

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The subject of dissection wounds has, of late years, seemed less important than it was thought to be some thirty years ago. When I was a student, it was believed that such wounds were not rarely fatal, and that frequently they led to severe disease. Now, they are made light of. My recent illness disposes me to think this levity misplaced. It is very improbable that there should be any change in the virulence of poisons generated in the dead body; and if there be any change in the consequences of inoculation with them, I should think it due to the changes in the manner of treating them. In my student-days the first signs of inflammation following such wounds were generally treated with leeches, purgatives, spare diet, and other depressing means; now, as for many years past, the prescription is good food, wine, rest, and, above all, fresh air. You may be certain that this is the better prescription; and I believe that if I could have availed myself of the whole of it, especially of the last two ingredients, I should have averted most of the troubles that I have lately suffered.

Let me now speak to you about these troubles. And, first, as to their source and the conditions on which they depend. The material with which I was infected was in the dead body of the patient on whose case I last lectured. He died after lithotomy, with acute cellulitis at the back of the pelvis, and with acute pleurisy; both of which, I believe, were of pyæmial origin. The grounds for this belief I stated to you when, at the last lecture, I showed you the morbid structures removed after death. I refer to it now only that I may remind you of the probability that the inflammatory products of pyæmial disease are especially virulent after death. The most dangerous examinations appear to be those of women who have died with puerperal peritonitis; and most of the cases thus named are pyæmial. I can only suspect that the material which poisoned me was in the pleuritic fluid, in which my hands were long soaked; but what the poisonous material —the virus—was, neither this, nor any record of similar cases, enables me to tell.

Whatever the virus was, it soaked through my skin; I had no wound or crack of any kind. Mr. Young, who began the examination, cut himself and suffered no harm. I had a sound skin, but one not impenetrable, and through it the virus worked its way. Mr. Young did what I advise you to do in any similar case. He washed his hands, sucked the cut part, made it bleed freely, and then took care of himself, and did not rub the cut part with nitrate of silver. He thus reduced his risk to less than that of the absorption of virus through sound skin.

This absorption is generally spoken of as if it were a strange and rare fact. Rare it may be, but strange it is not; for thus it is that, most commonly the poison of chancre passes through skin and that of gonorrhœa through mucous membrane, and thus that the irritant matter of cantharides and other skin-irritants passes to the cutis, and from it may be absorbed. A wound or a crack that exposes a vascular surface is doubtless very favorable to infection by any virus; but it is not essential; I wish it had been and were still so.

Thus, then, this virus passed into me; and I will tell you presently some of the mischief that it did. But first let me say that this mischief would not have happened but that there was in me something that made my blood, or some of my textures, susceptible of such diseased processes as the virus could excite. For not all men can be made ill by a virus from a dead body, nor can the same man be made ill at all times; but there must be what is called a fitting soil for the virus to work in. We know no more what this soil is than we do what the virus is; we have to use figurative expressions; but we need not doubt that they imply facts, and that, for any living body to be made diseased by a dead one, there must be certain living materials which can be diverted by the dead ones from their normal relations and turned into a morbid course.

A chief interest in reference to these various susceptibilities of the influence of virus from dead bodies is, that one may become insusceptible. They who are day after day engaged in dissections or in post-mortem examinations usually acquire a complete immunity from the worse influences of the virus. They may suffer local troubles from it, and some among them may get that curious warty affection of the skin of the hands or fingers which Dr. Wilks described in the Guy's Hospital Reports; or they may lose health through the influence of bad air or over-work; but they do not suffer with any infection of the lymph or blood.

Such an immunity as this I enjoyed when I was demonstrator of morbid anatomy, and made almost daily post-mortem examinations. It mattered not what was the disease of which the examined body died, or what was the state of my skin, sound or cracked or wounded: nothing hurt me; and this immunity lasted many years.

A similar immunity in the case of many fevers is possessed by those who have passed through one attack. It is, as you know, very rare to have a second attack of scarlet fever or of typhus; and it is, perhaps, more rare to have a second indurated chancre, or a second complete series of secondary symptoms. In these cases we believe that the first attack alters the blood or tissues in such a manner that they are no longer susceptible of the same morbid changes as they were, even though in all other respects they appear unaltered. But I think it is not in this way that the immunity from the infections of dead bodies is obtained; for though few demonstrators or others constantly engaged in morbid anatomy escape quite unscathed, yet some do so; and these may be enough to prove that the immunity is acquired by what we may call custom. Just as a man, beginning with small quantities of strong drink, and gradually increasing them, may never get drunk, even though he may at last drink hugely too much; or as a Styrian (if the stories be true) may take arsenic till he can hardly be poisoned with it, so may anyone by custom become insusceptible of the evil effects of the corpse-poisons. It may be that his blood and tissues become less alterable by alien matters, or that the living parts acquire more power of assimilating or excreting the dead materials that are introduced among them; how it comes to pass we cannot surely tell, but the fact of an acquired immunity seems certain.

I wish some of you would study these immunities more closely than anyone has yet done. They are of infinite interest in physiology, for they show a striking contrast between dead and living things. *Gutta cavat lapidem* is a pattern of many proverbs that express the popular knowledge that all dead things yield to the repeated application of small forces; yet living things rather strengthen themselves against such forces. Not that this or any other contrast between dead and living things is absolute or constant; yet this, like all the rest, is worth most careful study. And of still more interest in pathology are these acquired immunities; for as yet we know scarcely more than the bare fact. Some immunities are local—such as that of which anyone will tell you who has had a long succession of blisters on the same place. He finds at last he can be blistered there no more; yet you may blister him on some other part. And such, I suspect, is the immunity from the virus of soft chancre which may be obtained through frequent inoculations; but of this I have had no experimental knowledge. I think, however, that I have had personal knowledge of acquired immunity from another kind of inserted poisons—that, namely, of fleas, bugs, and the like pests of vacation life. Let me commend this subject of study to any of you who are not unwilling to be martyrs to science. I think you will find, as I have found in some continental tours, that for the first nights you will be driven half wild by the vermin of the bed or of the air, but that after a time you care less for them, and that at last you become indifferent to them; not because they leave you alone, but because their virus no longer irritates the blood or the textures that at first fiercely resented them.

This instance may seem a trivial one; yet I believe that in it you may find illustrations of much more serious things, even of that doctrine of syphilisation of which you have heard so much.

But now observe: this immunity, it seems, may be gradually lost, just as that after vaccination may be; the influence, as the expression is, gradually wears out. My case is evidence of this. Years ago no virus of a dead body could hurt me; but then came a time in which I made few or no examinations after death. I stood by and watched others making them; and I became again susceptible to poisons that were once innocuous. My blood and textures regained the state they had before ever virus was introduced into them, and I became again more poisonable.

Think how curious a fact this, which is only one of a large class, is. Being more susceptible of morbid influences, one seems less healthy; but, in truth, one has become more healthy. Just as in vaccination, or in scarlet fever, one's blood or textures, or both, being so altered that the same poison will no longer act on them, they seem the better for the change; yet they are morbidly altered. And then, for years afterwards, by the exact assimilation of the nutritive process, they are maintained in the same morbid state; like a scar which, useful as it is, is yet a morbid structure. And as a scar, if not to deep, gradually wears out —that is, gradually reverts to the healthy skin-structure,—so is it with the blood and textures of the once infected person. Recovering their natural condition, they become again susceptible of infection; becoming again healthy, they become what may seem weaker, and are more liable to disease.

Think, again, of the long time during which facts like these prove that a process of recovery from disease may continue before it is perfect. The years through which a man must pass before he becomes liable to a second attack of these diseases tell the time that is required for his complete recovery from the first. Let the fact teach you both patience and hope in your treatment of the consequences of disease. It makes me believe that I might now, with perfect safety, examine any dead body whatever.

Now let me tell you, with commentaries, what the virus did in me. The exmination was made on the 4th of February, and after it I finished a long day's work, feeling unharmed. On the 5th, which was a Sunday, I felt, not ill, but tired, and I spent the greater part of the day idly, falling asleep over good books. On the 6th I lectured, in the morning, on the morbid structures obtained from the examination, and the theatre was, as usual on Mondays in the winter, very cold. I was chilled and very tired; but a heavy day's work had to be done, and I did it. I had observed three or four small pustules on my hands, especially one on the back of my left hand, but they caused no discomfort, and I had no suspicion of being hurt till about five o'clock, when I felt my left axillary glands tender, and could not press my arm against my side. At half-past eight, when I got home, I was cold and ill; the mischief was begun.

I mention these things that I may illustrate, as I have so often done, the influence of fatigue in developing disease, or at least in making one susceptible of it. I can be as sure of this as of anything which has not occurred, that if I could have rested for two or three days after the insertion of the virus, it would have done me little or no harm. I cannot tell you whether it is by mere diminution of a normal power of resisting changes, or (as Dr. Carpenter has shown to be much more probable) by the production in the fatigued organs of some material on which morbid poisons may multiply or flourish; but you will find in every day's practice that fatigue has a large share in the promotion or permission of diseases than any other single casual condition you can name.

Thus, then, I was prepared for receiving injury, and the injury was supplied in some material of this dead body. And I would repeat that this material was probably something special enough to be called a virus or poison; for although any decomposing organic matter may in some persons give rise to the worst forms of blood-poisoning, yet I have no reason to think they would have done so in me. Not a day has passed for many months without my hands being in contact with pus and other decaying or decomposed organic matters; yet none of these poisoned me, though I was often enough as much fatigued as when I fell ill.

I wish that I could tell exactly all the signs of illness that I so anxiously watched; but during acute disease one cannot record, and after recovery one cannot well remember, the daily progress of a case. I can only tell the general consequences of this poisoning.

The first thing observed was a few small pustules on the hands, very trivial-looking things, which appeared on the day after the examination, and in the next week or ten days dried without discharging or causing any local trouble. I think they were only local effects of the simply irritant fluids of the body, or of the carbolic acid oil, with which I had uselessly though thoroughly rubbed my hands before beginning my part of the examination. I see no reason for supposing that the material which poisoned me was from any of these pustules.

The first sign of the general poisoning was (as I have said) the pain in the axillary lymph-glands. No lymph-vessels could be seen or felt up the arm at any time; the absorbed material traversed them, but did not irritate them; but the glands enlarged, and became painful to a degeee far surpassing the swelling or any other sign of inflammation in them. I do not know whether this exceeding painfulness was due to something in the poison, or was dependent on some peculiarity in my nervous system. I have seen it in one other case of poisoned wound, in which, as in mine, it indicated no great severity of inflammation in the glands. With me it slowly diminished, but did not quite cease till I was nearly well again, although no considerable morbid changes took place in the glands. They were painful; nothing else.

Next after this affection of the axillary lymph-glands came widespread inflammation of cellular tissue. But before saying more of this I ought to tell what may have had some influence in determining the course of my case—namely, that my axillary glands were already damaged, and may have been less penetrable by fluid than they should be. More than thirty years ago, when I was a student, I was infected while dissecting (I had not yet acquired the immunity which I afterwards gained and lost); and this infection was followed by one of the lesser and slower consequences of dissection-injuries, the suppuration of lymph-glands. At that time my left axillary glands slowly suppurated, and, after discharging for many weeks, healed with a deep scar, and shrivelling and partial calcification. Thus damaged they may have too much hindered the course of the absorbed fluid; but I doubt their doing so, for I have never been conscious of any obstruction in them; and in other cases of patients with healthy lymph-glands the same inflammation of cellular tissue as I had occurs.

This inflammation, which became evident four or five days after the infection, extended quickly from the axilla up the left side of my neck, over and below the clavicle, and down the back nearly as far as the ilium. Observe the range within which the inflammation was limited, for in this, as in other cases, it was in the range of lymphatics connected directly, or not far from directly, with the lymph-glands first affected. A frequent site for such cellular inflammation is down the side of the chest, or over or beneath the pectoral muscles. Thus it was with Mr. Bloxam, who was poisoned about a fortnight after me, and in whom acute pleurisy with effusion occurred on the same side. But, so far as I know, cases do not occur of similar inflammation on the opposite side, or separated far from the lymph-glands corresponding with the poisoned part, unless it be at a later period of illness, when pyæmia is established. This seems to be a point of distinction between these dissection-poisonings and pyæmia; their effects are at first, however severe, comparatively limited to the part poisoned, and to the lymphatic vessels and glands, or to the cellular tissue, nearly in relation with it. They may lead to pyæmia, but they do this only by secondary changes, or, as it were by some accident.

The rage of cellular inflammations in these cases, following as they do on the affection of the axillary glands, seems to indicate that they are due to arrest of lymph in the affected parts, and to its being poisoned by reflux from the glands. Thus poisoned it would at once infect the cellular tissue in contact or close proximity, and hence would be derived the spreading inflammation, much like phlegmonous erysipelas, with sloughing or diffuse suppuration.

In my case the inflammation, at first widely diffused, gradually concentrated its effects in two places—first at the back, nearly over the angle of the sixth rib, where suppuration was evident about a fortnight after the first appearance of the swelling, and, about a week later, under the edge of the trapezius, just above the level of the clavicle. Both these abscesses were freely opened. The first was seated in the deepest part of the subcutaneous cellular tissue, and the second under the cervical fascia. The first suppurated very freely; the second scantily. Both healed soundly in five or six weeks from the time of opening them.

The position of this second abscess deserves notice, for it was probably due in part to the old damage of the axillary glands, of which I have already spoken. It was such an abscess as might have pointed in the axilla, and I always felt as if it would do so, for hardness and pain could always be detected there. But it seemed as if the axillary tissues would not yield, and therefore the abscess extended upwards, above the apex of the axilla, to the subfascial tissue beneath the edge of the trapezius. Both these abscesses were opened early—that is, so soon as fluid was clearly discovered in them. And I felt the comfort and utility of this practice; for though they had given me very little pain, and had been soothed with poultices, yet they seemed to keep alive my fever, and especially before the pointing of the second I had chills and exhaustion, which were evidently remedied by its being opened. In the opening of it I enjoyed the safety which I have often conferred on others by the adoption of Mr. Hilton's plan. The abscess lay very deep, and was very small, under the edge of the muscle, and with integuments and cellular tissue so thickened over it that all the landmarks for incisions were lost, and the district was one in the depths of which a knife, however skilfully used, might have given me serious trouble. The director penetrated the abscess safely, and the forceps sufficiently dilated the opening, and I had self-evidence on which to urge you to use Mr. Hilton's plan in all operations on abscesses in dangerous regions.

After the opening of the abscesses the infiltration of the cellular tissue about them cleared up slowly; and, more than once, patches of thick œdema appeared over the left ilium as if suppuration would take place there; and when erysipelas came on there was much more than usual œdema with it, as if there were still some hindrance to the free movement of the lymph.

The general illness that attended these suppurations was not severe. When it was evident that abscesses would form—that is, a fortnight after infection,—I was sent to Norwood, and, with the fresh air and quiet of the place, I gained strength, and could eat and drink well, and digest pretty well, and seemed floating into convalescence. But just before the evident suppuration of the second abscess, I had chills every day, and after them heat; and with these great loss of power and general distress—distress so keen that it seems hardly possible that I should now be unable to describe it, or even clearly to remember it.

This general illness, this constitutional disturbance, was, I believe, the beginning of erysipelas. But before speaking of this, let me tell that the pus from my abscess appeared to have irritant properties above those of ordinary pus. For my childrens' nurse, who made and put on my poultices, pricked her finger; and this was followed by very acute inflammation and suppuration, extending from the puncture over all the hand and forearm. The same thing happened through a similar accident, to Mr. Bloxam's nurse, one who was habituated to pus of all ordinary kinds, and had not suffered from them.

Of the erysipelas that affected me after these abscesses, beginning about a month from the time of infection, I need not say much; for it had no remarkable feature, unless it were in the degree of subcutaneous œdemna which predominated over the inflammation of the skin and remained very long. Beginning near the wound in the neck, the erysipelas spread slowly over the chest and back, down the left arm, and over the nates and parts of the thighs. The eruption was much more extensive on the left side than on the right; it slowly cleared up, and after desquamation no trace of it remained, unless it be in a weakness of the minute blood-vessels of my arm; for even now, after my bath, the affected part of this arm appears dusky and mottled.

It was during the erysipelas that my general health suffered most; but my recollection is not clear about anything but the feelings of intolerable restlessness, which nothing but wine or morphia would tranquillise, and of the interest with which for many days I watched the progress of my own case, fancying myself an intelligent observer. At last, after the erysipelas had been extending for about ten days, and at the end of nearly six weeks from the infection, there came what seemed to me like a crisis. During the night in which my pulse and temperature were at their highest I had a profuse sweating and a profuse flow of urine, such as I never had in my life before; and next day my pulse and temperature had come down to what might be deemed safety-points, and I was conscious of returning health.

In the treatment that I received during the erysipelas, I am sure that quinine was very useful. I generally took three or four grains of the hydrochlorate three times a day, and it always (I think) lowered my pulse and diminished my restlessness and (I believe) my temperature. And I wish I could tell the comfort that morphia gave me—whether in bringing sleep, or in changing the unrest that always increased towards night into a happy and complacent wakefulness almost as refreshing as sleep. It was well that pleasure unnaturally obtained should have a penalty; and this was in the dryness of mouth, which seemed due to a total suspension of the secretion of saliva, and which became at last even less tolerable than restlessness. Locally, collodion, freely applied as soon as an erysipelatous redness appeared, gave great comfort. It did not hinder the spreading of the erysipelas; but it relieved the itching and heat of the eruption, and it prevented the horrid itching of the desquamation, which was intense, and renewed for many days on exposure to air, at every place to which the collodion was not applied. These things were certainly beneficial; but I suppose that those which most helped me to a safe passage through the illness were, a judicious moderate use of food and wine, and very wise and gentle nursing.

This erysipelas, it may be believed, was part of the effects of the poison of the dead body—an issue of the blood-poisoning. Not such, I think, was a pneumonia with which I suffered twice, and which added greatly to the risk and length of my illness. This was, probably, personal; due only indirectly, if at all, to the poison—due rather to a susceptibility of my lungs to the inflammatory process. For I have had acute pneumonia five times during the eighteen years before this illness. All these attacks have occurred after severe over-work, with deficient food, and exposure to cold; and the manner in which they have cleared off, leaving my lungs unimpaired in structure, has made it nearly certain that they were rheumatic or gouty. But, however this may be, the pneumonia, of which one attack commenced only two days after the infection, and the other a week after the disappearance of the erysipelas, must be ascribed to me rather than to the poison. They passed through their usual course, and left my lungs sound again; but I ask your attention to them as an illustration of one of the ways in which a specific disease may be complicated or modified by the personal constitution of the patient. Here was an instance of what one may call a specific poisoning; and one of the first things following it was pneumonia. Associated as this was with evidence of poison in the lymph-glands, it might have been thought pyæmial, or in some way due the specific poison in the blood. Yet it was only such a pneumonia as I might have had without having been poisoned, or such as might occur in me in any feverish illness from whatever source.

Keep such facts as this in mind. They show that there is no disease so specific but that its signs may be confused or complicated with the things that are peculiar to the patient. Syphilis is a specific disease as sharply defined as any, but its course and appearance in a scrofulous man and in a gouty one are very different. Vaccination produces a well-marked specific disease; but in one patient it may be followed by inflammation of lymphatics, in another by eczema, in another by anything you please: but all these are due in only a minor degree to the vaccination; they come out from the personal constitutions of the several patients disturbed by the vaccination, as they might have been by anything else producing some slight fever.

This is not a mere question of doctrinal pathology. It is among the first necessities for success in practice that, in the total phenomena of disease observed in any patient, you should be able to estimate what belongs to the disease and what to the man. A farmer may as well expect success if he sows his fields without regard to their soils or to the weeds that may of themselves come up in them, as one of us may expect it if we treat diseases without exactly studying the constitutions of those in whom they occur.

Thus I have given a sketch of my three months' illness, and some of the thoughts which it suggested to me. But I ought to say that my case showed only one of many forms of disease that may be produced by the poisons of dead bodies. The suppuration of lymph-glands which I had many years ago, is another. But besides such as these, you may find cases in trivial local inflammation; of direct and simple erysipelas; of spreading, suppurating, or sloughing inflammation of the cellular tissue of the hand and arm; of pyæmia; and of the fiercest septicæmia. And it is remarkable that different effects may be produced by the same poison acting on different persons. Mr. Erichsen mentions a case in which six students were infected by the same body: two had suppuration of the areolar tissue under the pectoral muscles and in the axilla; one, a kind of maniacal delirium; a fourth had typhoid fever; and the other two were seriously indisposed. I advise you to read-up the subject in his "Art and Science of Surgery." He has given an excellent account of it; and so has Billroth in his and v. Pitha's "Handbuch der Chirurgie."

Sir William Lawrence used to say that he had not known anyone recover on whose case more than seven had consulted. Our art has improved. I had the happiness of being attended by nine: Dr. Burrows, Sir Wm. Jenner, Dr. Gull, Dr. Andrew, Dr. Gee, Mr. Cæsar Hawkins, Mr. Savory, Mr. Thomas Smith, and Mr. Karkeek. In this multitude of counsellors was safety. The gratitude I owe to them is more than I can tell—more than all the evidences of my esteem can ever prove.

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Lettsomian Lectures

ON

EXCISIONAL SURGERY OF THE JOINTS FOR DISEASE.

Delivered before the Medical Society of London.

By Frederick James Gant, F.R.C.S.,

Surgeon to the Royal Free Hospital.

LECTURE II.

THE KNEE-JOINT (CONCLUDED).

Amputation of a limb is generally compared with excision of a joint for disease, as if the two were *alternative* operations. Now, the incurability of joint disease by non-operative treatment is indeed the condition eligible either for excision or for amputation. But in what does such incurability consist? The whole diversity of opinion and experience among surgeons in regard to the propriety of excision *versus* amputation springs from a twofold view of the nature of the state in question. Thus, scrofulous disease of the knee-joint may be considered incurable, without operative interference, when the disease has advanced to destruction of the articular cartilaginous surfaces of the tibia and femur without the supervention of anchylosis, so that the joint has become functionally useless; or, the same disease may not be regarded as incurable until it has advanced to a further and even to an extreme state of disorganisation—dislocation (partial or complete), abscess, sinuses, profuse and long-continued discharge, with the constitutional disturbance of hectic and exhaustion. The turning-point of distinction between these two opposite states of the same disease is this: in the one case the joint has become functionally useless; in the other, to this condition is generally superadded a constitutional state of exhaustion which leaves no period of time nor vital reserve-power sufficient for any prolonged process of reparation after operation—averaging three months for the knee and hip, and six weeks for the elbow.

But this measure of time and of reserve-power are the essential elements of that reparative process which will inevitably be necessary to effect osseous or ligamentous union, as the case may be, and thence a successful result after *excision*. Consequently, compared with *amputation*, the operation of excision, under the adverse circumstances of *advanced* disease, will be singularly unsuccessful; whilst, at an *early period*, recourse to amputation is unnecessary and unjustifiable.

Excision and amputation for joint diseases are, therefore, not alternative operations for the surgeon's choice of one or the other. The comparatively early period for excision is too early for amputation, and the comparatively late period for amputation is too late for excision. When either operation becomes justifiable for joint disease, the other should not be entertained.

Excision in relation to Life, or the Mortality after Operation.—I must now ask your attention for a short time while I marshall before you and wield some large masses of figures. Taking the results of large collections of cases, those also in different hospitals of the United Kingdom as smaller collections, and from the practice of individual surgeons as still smaller numbers, three *general* conclusions may be established respecting the rate of mortality from knee-joint excision for disease,—1. A diminishing mortality as the operation has continued to be practised. 2. Since the revival of the operation, and more recently, an average death-rate of 1 in 4 or 5 cases. 3. Very different death-rates in the hands of individual surgeons, varying from 1 in 2 or 3, to 1 in 12 and 1 in 19, or even less. The conditions of disease, both local and constitutional, in the cases selected for operation, have doubtless mainly determined this different resulting mortality, and not uninfluential has been the mode of performing the operation, and more significant the after treatment. But the operation and after treatment in the particulars essential to success have, perhaps, chiefly affected the resulting state of the limb. The general results respecting the mortality of knee-joint excision for disease in large collections of cases, and those of different hospitals in the United Kingdom during a period of the last five years, are exhibited in the following collections of cases, which illustrate the three general conclusions already referred to.

For the special returns relating to hospitals and to individual surgeons, I am indebted to those whose names are stated below.

It is scarcely necessary to observe that, of the large total number of cases, some are necessarily included in more than one collection.

1. Collected by Mr. Butcher. Period 1850–4: Number of cases, 31: recoveries, 25; deaths, 6 (mortality, 1 in 5). Period 1854–6: Number of cases, 50: recoveries 41; deaths 9 (mortality, 1 in 5 or 6).
2. Collected by Mr. Price; period 1760–1860, extended by Mr. H. Smith to 1865.—Number of cases, 316: recoveries, 240; deaths, 76 (mortality per cent., 24·05, or 1 in 4). Amputations after excision, 39: recoveries, 30; deaths, 9.
3. Collected by Dr. MacCormac.—Number of cases, 74: recoveries, 49; deaths, 25. Amputations after excision, 11: recoveries, 7; deaths, 4.
4. Collected by Mr. W. P. Swain.—Number of cases, 82: recoveries, 67; deaths, 15. Amputations after excision, 4: recoveries, 4; deaths, 0.
5. Collected by Dr. R. Hodges.—Number of cases, 208: recoveries, 106; deaths, 60 (mortality per cent., 28·84, or 1 in 3 or 4). Amputations after excision, 42: recoveries, 7 (?); deaths, 9.
6. Collected by Heyfelder.—Number of cases, 213: recoveries, 149; deaths, 64.
7. Collected by M. L. Peniere (British and foreign); period 1762–1869.—Number of cases, 431: recoveries, 300; deaths, 131, including 47 amputations and 6 re-excisions.

The following statistics have been collected by myself from the hospitals named:—

1. King's College Hospital; period 1850–70. (Per

Mr. H. Smith.)—Number of cases, 80; recoveries, 57; deaths, 23. Amputations after excision, 8: recoveries, 4; deaths, 4.

2. St. Bartholomew's Hospital; period 1866–70. (Per Mr. Callender.)—Number of cases, 37: recoveries, 28; deaths, 9. Amputations after excision, 3: recoveries, 2; 1 death.

3. St. Thomas's Hospital; period 1866–70. (Per Mr. F. Churchill.)—Number of cases, 22: recoveries, 14; deaths, 4. There was one amputation, after excision, which resulted in death. (Four cases under treatment.)

4. Royal Free Hospital.—Number of cases, 20: recoveries, 18; deaths, 2. Amputations after excision, 6, of which 3 were re-excisions; recoveries, 6.

5. Chalmer's Hospital, Edinburgh; period last six years. (Per Mr. P. H. Watson.)—Number of cases, 18: recoveries, 16; deaths, 2.

6. Charing-cross Hospital; period 1870. (Per Mr. Hancock.)—Number of cases, 11: recoveries, 11 (?).

7. Royal Infirmary, Liverpool; period last five years. (Per Mr. W. J. Cleaver.)—Number of cases, 11: recoveries, 10; 1 death. Amputations after excision, 3: recoveries, 3.

8. Westminster Hospital; period last five years. (Per Mr. F. Mason.)—Number of cases, 10: recoveries, 8; deaths, 2. There was one amputation after excision, which recovered.

9. London Hospital; period last five years. (Per Mr. M'Carthy.)—Number of cases, 8: recoveries, 5; deaths, 2; 1 progressing favorably.

10. Royal Albert Hospital, Devonport; period last five years. (Per Mr. W. P. Swain.)—Number of cases, 6: recoveries, 6. One amputation after excision, ending fatally.

11. Great Northern Hospital; period last five years. (Per Mr. J. Willis.)—Number of cases, 4: recoveries, 2; deaths, 2.

12. St. Mary's Hospital; period last five years. (Per Mr. Gascoyen.)—Number of cases, 2: 1 recovery; 1 death.

13. Guy's Hospital; period 1864–69, or five years. (Per Mr. T. Bryant, from Dr. Steele, superintendent.)—Amputations after excision, 4: recoveries, 3; 1 death.

Comparative Mortality of Excision, and Amputation in the Thigh.—The results of thigh-amputation for disease, as noted in University College Hospital, are thus stated by Mr. Erichsen. Of 34 cases of such amputations, 7 died; or say 1 in 5—a mortality of 20½ per cent. Malgaigne's statistics from the Parisian Hospitals show a far higher mortality: in 153 cases of thigh-amputation for disease, 92 died, being a mortality of 60 per cent. Mr. Syme represents the mortality as yet higher—from 70 to 80 per cent., taking amputations of the thigh generally. Approaching larger masses of results, we find that in Mr. T. Bryant's collection of 1168 cases of thigh-amputation, 254 died, or 21·7 per cent.; and in Carrick's still larger collection of 1413 cases, 434 died—a mortality of 30·71 per cent., or 9 per cent. higher mortality than in the former series. These large collections of cases, however, are indiscriminate. They include incisions for injury as well as for disease, and the latter not exclusively such as might be eligible for excision. But Mr. Bryant has supplied 188 cases of amputation of the thigh for chronic disease of the knee-joint; and of these there were 41 deaths—1 death in between 4 and 5 cases, or a mortality of 21·8 per cent. This nearly corresponds to the death-rate first stated; and it about equals the death-rate after excision. But if the mortality of thigh-amputation and of excision of the knee-joint, both for disease of the joint, be thus about equal, the patients who survive either operation have a very different advantage; the one being without a limb, the other with the limb preserved.

State of the Limb.—The functional result of excision, whether of the knee-joint or other joints, is generally expressed in rather vague terms—e. g., useful limb, without specifying the kind of union, or the position of the limb, as straight or bent. This indefinite mode of record omits much satisfactory information as to the state of the limb after operation. As a specimen of the average record of results under this head, I may cite from Mr. Butcher's collection of cases, referred to in considering the relation of knee-joint excision to the mortality after operation. Of the 25 recoveries, out of 31 cases, 17 were enabled to walk about with "perfect use" of the limb. Of the 41 recoveries, out of 50 cases, 33 had "useful limbs," the remaining 7 being subjected to amputation.

Compared with the stump after amputation, Sir William Fergusson justly observes.—"A well-healed stump never in reality improves, unless, possibly, it gets more callous, whilst often it gets more tender and irritable; but the seeming perfect result of excision at the end of six or twelve months, just when stumps are generally at the best, is no criterion of true perfection. If the limb is properly managed afterwards, it goes on improving for months—aye, for years. The thigh, leg, and foot enlarge in bulk; and in particular, with this change, the leg and foot improve in muscular energy." But why draw any further comparison between a stump—a truncated limb, and a slightly shortened limb, even although the stump be fitted and set off with an artificial leg?

The *average duration* of the process of recovery is considerable. According to Dr. Hodge's tables, the duration of treatment, when the patella had been removed, in 48 cases, was 225 days; and when that bone is believed to have been left, in 38 cases, this period extended to 255 days. The average duration, therefore, was about eight months. But in 8 successful cases, all of them children, at St. Thomas's Hospital, the average duration of treatment, as reported by Mr. Allingham, was only 206 days, or about seven months. Many cases also progress more rapidly than this; and in my first case of excision of the knee the period of osseous union was only 60 days, or two months, the knee then supporting the weight of the trunk. This patient was thirty-three years old at the time of operation, with previous synovial disease of six years' duration; and the union has stood the test of twelve years' free use of the limb. The *average* period for recovery, in my own cases, has been, for the production of firm or perhaps osseous union, three months; and to regain a useful limb, three months more, in a starched bandage, with gentle use of the limb gradually, for support and progression. Subsequently the limb will regain bulk and strength by increasing muscular development.

The *permanent* character of a successful result after excision, and the *average frequency* of such result, are questions severally omitted from statistical records. Both these important elements are noted in the results of my own cases.

The *growth of the limb* in length, after excision of the knee-joint, is a question respecting which the results are conflicting. The question can only affect the propriety of this operation in *youth* or *childhood*. It was originally suggested and investigated by Professor Humphry, of Cambridge, in an admirable paper on the Growth of Bones in their Long Axis at their Epiphysial Cartilages. The two epiphyses—upper and lower—in a long bone are not equally productive of its longitudinal growth; one is a more active organ of growth than the other. In the tibia and humerus the upper epiphysis is thus more important; in the femur and radius, the lower epiphysis. But the lower femoral epiphysis would appear to be *relatively* more important to the longitudinal growth of the femur than the upper tibial epiphysis is to the elongation of the tibia. Hence, with reference to excision of the knee-joint, removal of the *femoral* epiphysis will more especially arrest the subsequent growth of the limb in length. The growth of the *foot* also is arrested, so that it may become insufficient to sustain the weight of the body. All this arrest of development may be reduced still further by the imperfect growth from previous disease.

The practical deduction, therefore, seemed to be, that if, by excision of the knee in a growing subject, the epiphyses and epiphysial cartilages of the tibia and femur be removed, this operation will *invariably* tend to arrest the growth of the limb subsequently. Mr. Pemberton, of Birminghham, followed, in 1859, with a case in which a youth, having been operated on in 1854, the limb in 1859 was nine inches shorter than its fellow. Another case, from the practice of Dr. Keith, of Aberdeen, showed a deficiency in length of five inches during six years' growth. Counter-evidence on this question is adduced by Mr. Butcher. Dr. Keith himself wrote to the latter eminent surgeon, in 1856, that "J. Hay's limb, operated on November, 1853, is plump, and growing in length as fast as his sound limb. So also is J. Keith's, operated on May, 1854." Corroborative cases are cited from reports by Mr. Page, of Carlisle, and Mr. Brotherston. In a case where the entire epiphyses were removed by Mr. C. Heath from the knee-joint of a boy aged eleven years and a half, subsequent measurements showed that the *loss* of growth, in length of the limb, was only two inches in five years and a half. This case also illustrated the fact that such arrest of growth depends more on the removal of the lower epiphysis of the femur than the upper epiphysis of the tibia, the one bone growing in length more than the other after removal of its epiphysis in the knee-joint. Thus, the femur, as compared with its fellow, had lost four inches; the tibia, compared with its fellow, had lost only half an inch,—making an absolute difference in the whole length of the limb of four inches and a half.

Still, allowing for these and other exceptional cases, the rule already laid down as to excision of the knee-joint in young subjects, under the age of about ten or twelve years, should be observed.

Re-excision.—This proceeding is particularly advocated by Sir William Fergusson. In his "Lectures on the Progress of Surgery" he urges re-excision after a fair trial of the result of the original operation. Then he observes: "I believe dealing freely with the wound, opening sinuses, clearing away strumous effete material, picking away loose necrosed pieces of bone, gouging away bare material of the kind—aye, even opening up the whole surfaces, and sawing off fresh pieces of bone, to be better than amputation." My own experience of re-excision, as to the knee-joint, may be thus summarily stated. In 12 cases of knee-joint excision, 1 was followed by re-excision, and 3 by secondary amputation, but with a recovery so rapid as seemed to indicate that neither of the previous operations, excision or re-excision, was prejudicial to secondary amputation for the preservation of life.

Secondary Amputation.—The probability of amputation becoming necessary after knee-joint excision is a question that may be determined by reference to the collections of results which I have brought before you, and which show also the mortality thence ensuing, in addition to the proportion of deaths arising from the operation of excision. Of the 7 cases alluded to in Mr. Butcher's report as having been subjected to amputation after excision had apparently failed, 6 recovered rapidly, and only 1 died. In my own cases, of 11 knee-joint excisions, 3, including the 1 re-excision case, were submitted to amputation, and all made rapid recoveries. Compared with *primary* amputation of the thigh for disease of the knee-joint, these results as to mortality are most gratifying, and without at once sacrificing the limb which might yet be preserved by excision. Thus, in addition to the statistics already quoted, the mortality of primary amputation formerly at St. George's Hospital, as practised for "abscess" and "ulceration of the articular cartilages," was most melancholy. Of 11 such amputations of the thigh at that hospital, as reported in the *Medical Times and Gazette* (1856), 5, or nearly 50 per cent., of the patients died, while 1 of the remaining 6 was convalescent only on the sixty-second day.

In proceeding to bring before you the particulars of my own series of knee-joint cases, it seems desirable to take them separately from the records of previous experience, in order to represent this series from two points of view,—firstly, as supplying typical illustrations of the essential conditions of disease, local and constitutional, which are appropriate for excision, and the results, proximate and permanent, of operation in each case, together with any peculiarities; secondly, the cases are submitted to analysis with reference to these, and also any questions of secondary importance pertaining to excision of the knee-joint for disease.

Two of the cases were partly narrated in the Hospital Reports of THE LANCET of 1860; the remaining ten cases I have abstracted from clinical notes carefully taken by Mr. T. C. Murphy, senior house-surgeon at the Royal Free Hospital.

It would be impossible, and probably tedious, for me to narrate within the compass of this lecture the histories of all my cases. I must content myself with bringing before you the essential particulars of six examples; the first three as more especially illustrating the conditions of disease which I have found to be appropriate for excision of the knee-joint—in one case during the course of disease, in the latter two cases, as being failures of the natural cure, both in regard to the kind of anchylosis and by malposition of the limb. The remaining three of these six cases are interesting more particularly as exhibiting complications: in one case, pregnancy at the time of excision, but safe parturition at the full period, with a living, healthy child, and the mother's limb having undergone firm osseous union; in another case, accidental detachment of the tibial epiphysis in the operation; in another case, acute tetanus and death,—the only fatal case I have yet had after *any* joint-excision, twenty-eight in number.

Typical Cases of Knee-joint Excision.

CASE 1.—Elizabeth D——, aged thirty-three, admitted into the Royal Free Hospital on the 12th of September, 1859. *Chronic synovitis* of the right knee-joint, of traumatic origin; duration of disease, six years; treatment occasionally. Ulceration of the articular cartilages, and extensive caries of the ends of the femur and tibia. Constitutional condition, nervous exhaustion. *Excision. Recovery,* with firm osseous union and a thoroughly useful limb in two months. *Result* known to be permanent after ten years.

CASE 7.—Henry G——, aged twenty, admitted into the hospital Oct. 28th, 1869. *Chronic synovitis* of the left knee-joint, of traumatic origin; one year's duration; ten months' treatment. Partial ulceration of the articular cartilages of the femur and tibia, followed by partial *fibrous anchylosis* and retraction of the leg, with *partial dislocation* of the femur forwards. Health good. *Useless tenotomy* of the hamstring muscles. *Excision. Recovery,* with a thoroughly firm *osseous union* and useful limb in two months and a half. *Permanent* result, one year.

CASE 8.—Henry H——, aged seventeen, admitted into the hospital Nov. 27th, 1869. *Scrofulous caries* of right knee-joint, of traumatic origin; fourteen years' duration, with occasional treatment. Partial ulceration of the articular cartilages of the femur and tibia, followed by partial *fibrous anchylosis* and retraction of the leg, with *partial dislocation* of the femur forwards. Health good. *Useless tenotomy* of the hamstring muscles. *Excision. Recovery,* with *osseous union* and a useful limb in two months. This patient sat up out of bed daily at the end of five weeks. *Permanent* result. Nine months after operation (Dec. 1870) he could stand on the one leg unsupported, and hop on it; just before Christmas he walked from near Gray's-inn-road to Harrow and back—a distance of twenty-four miles—for a day's bird-snaring; and on boxing day he was sliding on the ice all day.

CASE 10.—Sarah S——, aged twenty. *Chronic synovitis* of the right knee-joint, of traumatic origin, by a fall off a form. *Duration* of disease, fourteen years. *Treatment* in two metropolitan hospitals at different periods up to fifteen years of age. At both these institutions amputation of the thigh was declared imperative. *Extensive ulceration* of the articular cartilages of the femur and tibia; limited fibrous anchylosis, with retraction of the leg to an angle of sixty degrees; anchylosis of the patella to the condyles of the femur. Health reduced; *pregnancy* of one month. *Excision.* The night of operation, sickness from chloroform. For two days, *painful startings* and jumpings in the leg of spasmodic character, affecting the knee. Fourth day, an hysterical fit, and the startings were renewed. The usual apparatus—a long back splint, and an external interrupted splint with foot-piece—holds firmly, and no displacement of the ends of bone. Spasms subdued, and sleep induced by the hypodermic injection of morphia—one-sixth-grain doses occasionally Two months and one week after operation, "quickening" was first felt. The incision was firmly healed by primary union, and firm anchylosis between the ends of bone progressing. *Puffy swelling* around knee; reduced by moderate and gradual compression with a many-tailed bandage. On removing the splints, a small *ulcer* on the *heel,* and another on the sharp edge of the *tibia.* Apparatus reapplied, leaving the heel more uncovered, and an opening opposite the tibial ulcer. Under zinc-wash dressings, both sores healed. General health very good; the patient fast regaining flesh and color, with a bright eye and cheerful aspect—looking, indeed, the picture of health. *Recovery,* with firm fibrous anchylosis, in three months; limb put up in a starched bandage, and the patient allowed to get about on crutches. Shortly after, was discharged from the hospital. A tendency to bowing outwards of the knee was soon evinced; rectified by gradual manipulation, the imperfectly ossified callus admitting of such *readjustment,* and the starch bandage reapplied. *Parturition* at the full period; the mother and child both having done well. Firm osseous union.

Analysis of the Cases.

(1) *Conditions of disease.*—Caries in all cases, with destruction of the articular cartilages of both the femur and tibia. In Case 1 the femur was chiefly affected, in Case 6 the tibia, and in the other ten cases both bones were about equally affected. The patella was healthy in nearly all cases.

(2) *Commencement of the disease.*—Synovitis in six cases—1, 2, 7, 10, 11, 12; scrofulous caries in the other six cases. *Cause:* Traumatic in eleven cases; constitutional in Case 2.

(3) *Duration of disease and of treatment previous to operation.*—Case 1: disease six years; treatment occasionally. Case 2: disease 5 years; four months' treatment. Case 3: disease 5½ years; 2 years' treatment. Case 4: disease 1 year; 9 months' treatment. Case 5: disease 12 years; occasional treatment. Case 6: disease 3½ years; occasional treatment. Case 7: disease 1 year; 10 months' treatment. Case 8: disease 14 years; treatment occasionally. Case 9: disease 7 years; and equally prolonged treatment. Case 10: disease 14 years; treatment at various metropolitan hospitals. Case 11: disease 13 years; treatment 1 year in a metropolitan hospital, then in a special hospital. Case 12: disease 10 months; treatment in two metropolitan hospitals, then in the Royal Free Hospital.

(4) The constitutional disorder had *not* advanced to hectic and emaciation in any of the twelve cases except in Case 3. In case 1, nervous exhaustion; 2, health good; 4, health irregular, digestion impaired; 5, marked anæmia; 6, health good; 7, health good; 8, health good; 9, health delicate with constant cough; 10, health reduced; 11, health good; 12, health good.

Pregnancy, without miscarriage, during the whole period of record in Case 10.

(5) *Age and sex.*—Age: 33, 27, 18, 20, 18, 5, 20, 17, 10, 20, 16, and 9 years. Sex: six males and six females.

(6) *Operation.*—The *incision* was semilunar downwards from condyle to condyle in all the cases. The *portions of bone* excised were the articular ends of the femur and tibia in all the cases, with additional portions of cancellated bone in Cases 1 and 6. The patella was removed in all cases. The *synovial membrane* was also removed as much as possible in Cases 2 and 7 of chronic synovitis. *Hæmorrhage* was inconsiderable during the ope-

ration in all the cases, no ligatures were required, the articular vessels being secured by torsion and exposure. *Sutures*—metallic in Case 1, silk in the subsequent eight cases. *Dressings*—water dressing in Cases 1 and 3, weak carbolic lotion in the other ten cases. *Splints*—a McIntyre, or else a back splint with foot-piece in all the nine cases, with an outside interrupted splint in all cases except 1 and 3.

(7) *Primary union.*—Complete, except just at angles of the incision, in Cases 2, 6, 7, 8, 9, 10, 12, or in seven cases; partial in Cases 1, 3, 4, 5, 11, or in five cases.

Secondary hæmorrhage in cases 3, 5, and 8; arrested by ice in the first case, by ligature in the latter two. Sloughing or ulceration from pressure in two cases 5 and 10.

(8) *Intervals of removal of splints.*—Average period one month after operation, and at similar periods subsequently, making only three or four re-applications of the retentive apparatus in each case.

(9) *Results.*—Osseous or firm union, and a straight limb, in all the cases; except Case 3, where it was incomplete; Cases 4 and 5, which were subjected to amputation; and Case 11, the *only death*, and from acute tetanus in thirty-six hours, seventeen days after operation. Period of union, average three months. Subsequently limb slightly bowed in two cases—2 and 6; the latter a child aged five.

(10) *Re-excision* in Case 5—a scrofulous case.

(11) *Secondary amputation* in Cases 4 and 5—both scrofulous cases; also in the questionable Case 3—a scrofulous case.

(12) *Permanent result.*—Ultimate known period: (1) 11 years; (2) 1½ year; (6) 1½ year; (7) 1 year; (8) 1¼ year; (9) 1¼ year; (10) 6 months; (12) 5 months.

Such, then, at present, is the recorded contribution of the Royal Free Hospital to excisional surgery of the knee-joint for disease.

All the specimens of bone are before you (they were beautifully mounted by Mr. Horniblow, of the Royal College of Surgeons); and some of the patients in the series of cases await your examination in the adjoining room.

Original Papers.

ON PAIN, AND SOME OF THE REMEDIES FOR ITS RELIEF.

By William Dale, M.D. Lond.

(Concluded from August Number—p. 416.)

The next medicine demanding our attention is *digitalis*, which has been not inaptly designated "the opium of the heart," for it has undoubtedly a marvellous controlling and soothing influence over that organ. I believe it is rightly classed amongst sedatives; and the notion prevalent of late that it is "a tonic of the heart" is only true in the sense that, by removing irritability and irregular movements of the heart, it permits the circulation to be performed with more freedom, and so helps all the organs of the body to throw off the load which previously oppressed them; just as opium will strengthen trembling and unsteady limbs by tranquillising and sustaining the brain, and, through it, the whole of the nervous system. The effects of digitalis approximate those of tobacco; I cannot see on what grounds it can be accounted a tonic medicine. One wonders therefore at its employment in certain diseases of debility—as, for instance, delirium tremens,—and can only suppose that the reported recoveries are the result of a happy accident, and the vaunted efficacy of the remedy an instance of the continued dependence of the profession upon a fallacy which has governed men's opinions in all time: I mean the logical fallacy, *post hoc, ergo propter hoc.* In doses of from ten to thirty minims of the tincture, half an ounce to an ounce of the infusion, and one grain to two grains of the powder, it is one of our very best palliatives in irregularity of the heart's action resulting from endocarditis, pericarditis, valvular imperfection, &c. In the above doses it often also acts powerfully as a diuretic, and very rapidly removes the dropsical effusions which may occur under such circumstances. I do not believe that larger doses are necessary, but can understand larger doses being given in past times, in inflammatory complaints; and, in this sense, to administer half an ounce, or even an ounce, for a dose is no novelty; but to treat delirium tremens in this way is, in my humble judgment, contrary to all sound physiological and therapeutic principles; unless, indeed, it be administered in cases where excitement of the brain or symptoms of inflammation are present, which would only be another proof that "there is no new thing under the sun." As regards the cumulative property of digitalis, it seems to have been greatly exaggerated. I have never seen any such effect, and have prescribed the drug largely in the doses above mentioned; indeed, I have seen half-drachm doses given three times a day during a year, for violent palpitation in hypertrophied heart, without any such result. Dr. Holland says: "Though employing the medicine somewhat largely in practice, I do not recollect a case in which I have seen any injurious consequences from this cause." Pereira, likewise, questions its cumulative property to any injurious extent. I conclude, then, that digitalis is a safe and beneficial medicine in the doses, and for the diseased conditions, above referred to, and its employment, generally speaking, is satisfactory.

I take *hemlock* next in order, inasmuch as Dr. Headland places it with sedatives, although I think it might with equal propriety be ranked with narcotics. Dr. Harley asserts that "its action is quite beyond our comprehension." He adds: "The drug seems to have the power of resolving nervous action into its chief constituents, and, leaving untouched the one portion (the sensory), suddenly paralyses the other (the motor). In selecting hemlock as a remedy in the treatment of nervous diseases, we must be guided by observing whether irritation, direct or reflex, of the motor centres is or is not present." If it be present, conium, according to Dr. Harley, is the appropriate remedy. The succus conii is the best pharmaceutical preparation of the drug. The extract which, until lately, was the one most extensively used is said to be almost inert—thirty, forty, or even sixty grains having been administered without producing any effect. Dr. Harley prescribes exceedingly large doses of the succus: for instance, one drachm for a child two years old, two or three drachms for a woman, and four to six drachms for a man; and he has known upwards of two ounces taken at once.[*] It has been used with benefit in cancer, both alone, and in combination with henbane, belladonna, &c.; and is said to possess some deobstruent and alterative properties, which render it more valuable than some other remedies of its class in this disease; but these properties are questionable. Theoretically, it should afford us some help in the treatment of spasmodic diseases; and has been employed in tetanus, but for the most part in vain. It is largely used in phthisis to allay the cough, but I have not been satisfied that it is of any value. The powdered leaves and the extract have also been used externally in cancerous tumours, and they will sometimes afford some relief to the pain.

I pass on to notice *hyoscyamus*, *belladonna*, and *stramonium*. I class these remedies together, since they are closely allied in their medicinal properties and uses. They are all beneficially employed to relieve pain and procure sleep—stramonium, however, principally as an antispasmodic. Henbane, until a very recent period, was our accredited substitute for opium in painful diseases—as cancer, neuralgia, tetanus, &c.—when the latter drug, from any cause, might be deemed inadmissible; but I think we have failed to obtain the full benefit of its operation by timidity in its use. To procure sleep, it requires to be given in doses of from one to two drachms. Belladonna, in doses of from ten to twenty minims of the tincture three or four times a day, is useful in spasmodic asthma. The extractum belladonnæ and emplastrum belladonnæ are beneficially employed externally in heart disease where there is irritablity of the organ, and in neuralgia and cancer. Stramonium has a world-wide reputation in spasmodic asthma, and often acts like a charm. For this purpose the flowers and stems are smoked like tobacco; sometimes alone, and sometimes with sage-leaves or tobacco. Cigars and cigarettes are prepared from stramonium by chemists; these answer the same purpose, and may please women better than a pipe. The employment of henbane, belladonna, &c., in combination with each other and with opium will be referred to afterwards.

I come now to speak of our chief medicine for relieving pain and procuring sleep—the remedy which we all employ daily, which, indeed, is as our right hand in practice, and which probably, in its twofold action, despite all its drawbacks, is one that will never be superseded—I refer as will have been anticipated, to *opium*. Although not professing that this medicine is so potent as the famed Lethean stream, which if once the unhappy, in Pluto's dark abode, can drink, they forget all their past miseries; yet suffering humanity owes much to its virtues, and the physician could ill spare it in his battle with disease and pain. It would be altogether beyond my purpose, and indeed might rightly be considered impertinent, were I to enter into any lengthened disquisition as to the merits of opium and its preparations for the relief of pain in general; and therefore, on this head, I content myself by remarking that opium is our ordinary and universal catholicon during the course, and especially towards the close, of the fatal maladies at which we have glanced—as cancer, phthisis, asthma, angina pectoris, &c.; and in those which are not necessarily fatal, as tetanus, neuralgia, obstruction of the bowels, and spasm in general, its effects are often wonderful, translating the poor patient from a state of the most intolerable torture to one of comparative ease and comfort—nay, entirely from Tartarus to Elysium. On the near approach of death, where much pain is endured, after having, as in duty bound, made the patient sensible of his condition, I see no reason why he may not be kept constantly under the influence of opium, or some other hypnotic, as a rule, so that, with the blessing of God, his misery and pain may be lessened or removed as he passes through the gloomy shades of death. Of course, subordinate means must frequently be employed as well: now stimulants, as ammonia, or wine or brandy; now external warmth, and sinapisms to various parts of the body; and now choosing an easy position for the patient,—one or all may afford him help in this supreme extremity.

In some constitutions, it must be observed, opium and its preparations are not tolerated, and generally, in their long-continued use, produce disorder of the digestive organs, headache, nausea, insomnia, and syncope. I have now therefore to speak of their use—first, in union with other narcotics; second, by hypodermic injection. In combination with hemlock it is said that the remedies intensify each other's action, so that the use of large doses of opium, by which its injurious effects are generally produced, may thus be avoided. Belladonna and henbane may be combined with opium, and morphia in the same way, and by this method, it is said, many of the objectionable properties of the latter are prevented. Belladonna, according to Dr. Harley,[*] has the power of neutralising the contractile effect of opium on the pupils. It increases and prolongs the hypnotic action of opium, and he maintains that the supposed antidotal or antagonistic action of opium and belladonna has not been proved. In Dr. Brinton's work on "Intestinal Obstruction" the combination of opium and belladonna is spoken of in the highest terms. In the form of obstruction which is caused by intussusception he gave two parts of opium and one of belladonna, and states that "nothing in the whole action of remedies can surpass the comparative painlessness into which I have seen an agonising intussusception converted during the many days that have intervened before its unavoidable termination in death." I very recently had under my care a case of jaundice, arising from obstruction of the common duct, probably from gall-stones, where the pain, which was considerable for several days, was best controlled by a combination of opium, belladonna, and hemlock, after opium alone had failed. The *hypodermic* injection of morphia has proved serviceable, either where opium or morphia has failed to give relief when given internally, or for the sake of its more speedy and efficacious action on the system, in smaller quantities. Then, also, belladonna, or, at least, atropia, is recommended as an adjunct for the prevention of the distressing and dangerous symptoms which sometimes follow the injection of acetate of morphia alone. My own employment of hypodermic injection has been confined to the treatment of neuralgia, but the satisfactory results I have obtained lead me to look upon it with much favor; and, moreover, I have not observed any troublesome or dangerous symptoms in connection with its use.[†]

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[*] In the *Practitioner* for Dec. 1871, Dr. Harley has an article on hemlock, in which he recommends an extract made from the *ripe fruit* as the best preparation—two to three grains being a dose.

[*] The old Vegetable Neurotics. By John Harley, M.D. Lond. 1869.

[†] This remedy, like every good thing, is being abused. It is

Chloroform is the next panacea for man's aches and pains to which I direct attention. "To charm an ache with air" is not a new discovery, strictly speaking, but only an old one utilised. Even as early as the twelfth century the following receipt is accredited to one Hugo da Lucca, an Italian physician:—"R. Opii et succi mori immaturi, hyoscyami, succi conidij, succi foliorum madragoræ, succi edereæ aboreæ, succi mori sylvestris, semilactucæ, seminis lapathij, quod habet poma dura, et rotunda, et cicutæ unam unciam." These medicines are directed to be boiled with sponge, and evaporated to dryness; then a portion of the dried sponge, steeped in hot water for an hour, is directed to be applied to the nostrils until stupor or insensibility is brought on. As soon as this soporific effect was produced, and prolonged so long as was deemed desirable, another sponge, dipped in hot vinegar, was applied to the nostrils to arouse the patient when the object for which he had been narcotised had been achieved.

Ether and chloroform,[*] or rather their vapors, are the principal anæsthetics now in use in the practice of medicine; but the latter has almost superseded the former. And whatever opinions may be entertained as to the priority of the discovery of its value, there can be no doubt but we owe the extensive use of chloroform to the labors and example of the late Dr. Simpson, whose attention was turned to it in 1847. But probably the first suggestion of anæsthesia in surgical operations is due to Sir H. Davy, more than half a century ago. There is, then, more than poetry and satire in the expression "to charm an ache with air"; for, in the paroxysms of asthma, tetanus, &c., it will act literally "as a charm," and cause the wondering patient to give utterance to the most lively expressions of gratitude for the relief one has been able to afford him.

In asthma, then, in tetanus, in the passing of gall-stones and urinary calculi, and in intestinal obstructions, internally by inhalations, and in neuralgia by its external and internal use, chloroform offers an invaluable agent for relieving pain; and should the time ever arrive when all danger to life shall be eliminated from its use, or should the scientific inquiries of Dr. B. W. Richardson and other philosophers result in the discovery of an anæsthetic that shall be totally free from danger, they will give to the world the greatest boon it has ever received from science, and achieve and deserve an immortal name. And that this desirable object may speedily be accomplished I am not without good hope; for some recent experiments made by Dr. Richardson with methylic ether, and reported in THE LANCET, tend to show that we may yet discover anæsthetic agents which shall be free from all dangerous properties.

There remains for our consideration but one more medicine, which, lately discovered, as to its remedial value, by Dr. Liebreich, a German chemist, possesses most marvellous soporific powers, and bids fair to rival even opium itself. I refer, of course, to ***hydrate of chloral***, or ***chloral hydrate*** —for it is known by both these names. Hydrate of chloral, since its introduction to the notice of the medical men of this country, has been spoken of in terms of the highest praise by those who have employed it in practice. It is said to be, and so from observation I should reckon it, simply soporific in its action; that is to say, it is not anodyne, like opium and some of the medicines I have named, but it produces sleep notwithstanding the presence of pain, as in cancer, neuralgia, &c.; and as it does not cause headache, nausea, syncope, and other injurious effects of opium, it is to be preferred in those cases where its use is likely to be long continued. In cancer; in neuralgia; in the insomnia of phthisis, either at its commencement or its close; in the distressing state which sooner or later results, in most cases, from asthma, and which has been described; in the insomnia of nervous people; and in tetanus and spasmodic diseases generally,—chloral hydrate promises to be an invaluable agent. Mr. Weeden Cooke, surgeon to the Cancer Hospital, London, thus speaks of its use in cancer:—"With the greatest faith, with ardent hope, I have worked conium by itself, in combination with hyoscyamus, with belladonna, and conjointly with bark thoroughly, and I still use it advantageously in some cases; but I regret to say it does not supply the need. It does not give relief from pain without disturbing the digestive process; neither does belladonna or hyoscyamus, given alone or in combination;...... and morning sickness and loss of appetite are the penalties paid for a night's sleep procured by opium or morphia frequently administered. Turning then to hydrate of chloral, there arises a hope that we have in view a method of relieving pain and procuring sleep which shall not interfere with the healthy assimilation of food, and which may be employed without producing any sort of unconsciousness. ...... The results obtained in the cases in which I have employed it are so charming, so persistent, that, fortified by the experience of others, I feel bound to add mine in confirmation of the excellent results obtained from this drug." Mr. Cooke recommends ten grains of the hydrate three times a day, and twenty grains at bedtime; and thinks no advantage is gained by much exceeding these limits. A case of idiopathic tetanus is reported in THE LANCET for April, in which this medicine was adminstered in doses of thirty grains every six hours; augmented, after a few days, to forty-five grains. It speedily relieved the symptoms, and the patient recovered in about fourteen days. Beef-tea and brandy were given liberally during the treatment. Dr. Zechmeister, of Esseg, recommends the hot bath in the treatment of traumatic tetanus; "but, to employ it effectually, it must be kept up, not for hours only, but for days, and for as many as from ten to fourteen." In this mode he has succeeded in saving the lives of no less than five cases. No particulars are given respecting the temperature of the bath, and to keep a man fourteen days in a hot bath does seem too much of a good thing. A case of asthma, at its close complicated with emphysema and heart disease, very lately came under my observation. The patient, sixty-four years old, had the first attack eleven years ago, since which he has been confined to the house during the whole of the winter season, through shortness of breath, cough, &c.; and latterly his breathing has been so bad, even in summer, that he could not walk more than a few yards without stopping to rest. On Dec. 24th, he became worse, and was confined to bed, and I

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stated that some women, after having been hypodermically treated under medical surveillance, are in the habit of injecting morphia under the skin daily, or more frequently, on their own responsibility, when suffering from slight neuralgic pains, mental depression, or severe ennui—just as the drunkard takes his dram. So easily are bad habits generated where the moral power is weak.

[*] Bichloride of methylene has lately been extolled as an anæsthetic; but that it is superior to chloroform is yet to be proved.

was called to attend. I found him propped up in a half-sitting posture and on his left side, with his head hanging partly towards the left shoulder and partly resting on the chest; and from this position he was not able to be moved from Dec. 29th to Jan. 4th, when his sufferings were terminated by death. Chloroform inhalations not carried to insensibility, and hydrate of chloral in twenty-grain doses, gave some relief, which the patient gratefully acknowledged; but it is dreadful to remember the self-evident agony of this case, and difficult to contemplate without the deepest sympathy and pain, suffering which generally we can so inadequately relieve.* I see that hydrate of chloral has also been beneficially employed in the insomnia of the insane, and in assisting delicate sufferers to undertake a journey: indeed, it is a true nepenthe of rare virtue. I am sorry, however, to observe, from the medical periodicals, that several cases of poisoning by chloral have occurred, principally, however, where persons have dosed themselves with it.

I have still a few words to add by way of supplement, or to supply omissions. First, have omitted all notice of two important agents which are often employed in the treatment of neuralgic pain—vis., counter-irritation and galvanism. But as my subject has already carried me far beyond the limits I had marked out, it must suffice to say that they have both succeeded when all other therapeutic measures have failed, and that the kind of galvanism usually employed is faradisation, or direct or indirect muscular faradisation, as recommended by Duchenne. On the contrary, Drs. Anstie and Buzzard say the *constant current* only is serviceable, and Dr. Gull has no faith at all in it. Secondly, I have not alluded to inflammatory pain, or no further than as it may be one of the causes of, or may augment when present, the diseases I have been considering. On this point it seems to me only necessary to say that, for the alleviation of inflammatory pain, opium, hot and cold applications variously used, the local abstraction of blood, counter-irritants, and the new medicine which last engaged our attention, when opium and its preparations are found to be objectionable, are our principal resources, auxillary and subordinate, of course, to the general treatment appropriate to each case. Other varieties of pain mentioned in the common parlance of medicine are familiar to our minds, as irritative, reflex, eccentric, &c. But although these distinctions are of the utmost importance as to the general treatment of disease, I do not think that they are either essential or useful in carrying out the work I had set before me, taking it for granted that they would be borne in mind in the employment of the remedies which have been discussed.

In bringing these remarks to a close, it is scarcely necessary to state that I have avoided all nice theoretical and scientific speculations as to the *modus operandi* of the remedies which have been passed in review. Indeed, of set purpose I have limited myself to the question: given a painful disease, what will relieve it?—and have endeavored to point out the medicines and other therapeutic measures which, by experience, have been found most beneficial; for that which cures or relieves a disease is unquestionably the best thing, both for the patient and the doctor, though the mode in which it does so may be entirely unknown. I notice, by the way, that a very important controversy on our present methods of treating disease has recently appeared in the medical periodicals, Dr. Wilks, on the one side, contending that the best and only legitimate treatment is empirical, inasmuch as we are ignorant of the way in which remedies act, or even if we are acquaineed with the *physiological* action of some we employ, their action may be, and frequently is, uncertain, or even totally different in the treatment of disease; Dr. Anstie, on the other side, contending that the empirical treatment of disease is a retrograde movement, and not in accordance with our present scientific knowledge, and, moreover, that it is to treat disease as a "special morbid entity," and not as "the sum total of the actions evoked in the body by the action and reaction of certain external influences and certain individual peculiarities of structure." On other points of minor importance, which it is not necessary to notice here, Dr. Wilks and Dr. Anstie are at issue.

It is curious and not uninstructive to observe how these medical Goliaths differ. Dr. Wilks has no faith in the scientific therapeutics of the day, and Dr. Anstie distrusts experience. According to the former, we have no settled scientific data, and according to the latter, no certain experience, to guide us in the treatment of disease. The one asserts that science has made no discoveries towards successful treatment, and the other that experience is just as impotent because of its dissimilar teachings. Between such doctors who shall decide! Yet surely, as is usual, there is a mean between these extreme opinions; and although experience will always remain the first and greatest teacher, science will become more and more a close and trustworthy ally—indeed, what is science but experience and observation applied or turned to account? Besides, whilst there is no royal road to the treatment of disease, there are several different and well-trodden paths in which it is safe to travel; and the more this fact is recognised, and the more dependence is placed upon general principles, rather than ever-changing opinions, in medical practice, the further will it be removed from the prevalent theoretical dogmatism which I have observed to be the very worst dogmatism of all.

It is not uninterting to observe how each generation is "wiser in its own eyes" than the last. Dr. Anstie impugns the wisdom of our ancestors, who looked upon disease, he says, as we have seen, as "a special morbid entity." But is this certain, in the sense here intended? At all events I fail to see that we are any nearer the truth when we say, with him, that disease is "the sum total of the actions evoked in the body by the action and reaction of certain external influences and certain individual differences of structure." The former view is doubtless a metaphor, or personification, just as we speak of the Devil being in a bad man, or represent Death as a fleshless reaper bearing his terrible scythe; and the latter is a learned definition only —a mere gloss, in fact, for our ignorance; and the definition that "every state of the human body which is injurious to the vital, natural, or even animal functions is named a disease," and which is certainly a hundred years old, is, as far as I can judge, quite as wise and useful.

Passing from this particular controversy, one cannot fail to remark that it is the fashion nowadays to decry and undervalue old practices and modes of thought, for no other reason apparently than because they are old; and this not favorable "sign of the times" has affected medicine as well as other things. Now as I happen to think—unfortunately perhaps—that the old ways should not be hastily forsaken, and that theoretical teaching, the fruits of "science falsely so called," is far too prevalent in the present day, I am not sorry that Young Physic has lately had to listen to the practical and outspoken lessons of Dr. Wilks, notwithstanding that I have ventured to speak of his opinions as extreme.

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* Peroxide of hydrogen and ozonic ether are said, by Dr. Richardson, to be useful in dyspnœa, in cases where there is great destruction of the lung and deficient oxidation. I trust his opinion may be verified in their further employment.

To conclude: I by no means flatter myself that I have exhausted my subject; indeed, I have found it more extensive, and its treatment more difficult, than I anticipated. Nevertheless I would fain hope that the thoughts and facts here brought together, though they be imperfect and suggestive only, may stimulate others to the pursuit of similar inquiries, and the putting forth of similar efforts, for the advantage of our high vocation, and the relief of suffering humanity.

Plymouth, May, 1871.

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ON GASTROTOMY;

WITH A CASE OF INTESTINAL OBSTRUCTION, IN WHICH THE OPERATION WAS FOLLOWED BY RELIEF OF THE SYMPTOMS AND CURE OF THE PATIENT.*

By George Buchanan, A.M., M.D.,

Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary; Professor of Anatomy in Anderson's University, Etc.

"The causes of intestinal obstruction are so various, its occurrence is fraught with so much danger, its symptoms are so severe and distressing, and its treatment so uncertain and so often unsuccessful, that it is with the greatest diffidence we undertake the consideration of such an important subject as the pathology and symptoms of intestinal obstructions, and the measures to be employed for their relief."

Such are the terms with which the accomplished writer on intestinal obstructions introduces the subject in Holmes's "System of Surgery"; and everyone who has seen examples of the affection in question will homologate his statements. It is my purpose in the following paper to make a few remarks on its varieties, and to relate a case in which all the symptoms were present in such severity as in my opinion to warrant the dreadful expedient of gastrotomy with the pleasing result of saving the patient's life.

The most systematic accounts that I can find on this subject are in Mr. Phillips's paper in the 81st volume of the "Medico-Chirurgical Transactions," Rokitansky's "Pathological Anatomy," Mr. Hinton's paper in the *Association Medical Journal* for 1855, the "Transactions of the Pathological Society," and Brinton's work on "Intestinal Obstruction," along with the synopses of these articles in the various systems of surgery. From these and other authorities it appears that intestinal obstruction may arise from causes external to the intestinal tube, or from affections of it. And it is important, in investigating any case which may come before us, that we are aware of the various conditions which have been found to produce symptoms of obstruction.

Among the first class of cases are to be reckoned all forms of hernia of the internal kind, as obturator, schiatic, &c., and constrictions caused by the intestine being entangled by loops, bands, or old adhesions of the omentum, appendices epiploicæ, or other peritoneal folds.

The principal affections of the intestine itself which have been found in connexion with the symptoms referred to are—ileus, intussusception, and stricture of some part of the great intestine, including sharp twist of the sigmoid flexure of the colon.

In a third class of cases the symptoms have been produced by impaction of the colon with foreign matter, the most common being hardened fæces.

In looking over a great many of the reported cases I find that spontaneous relief has happened very rarely; those which have ended favorably having been principally examples of intussusception where the gangrenous portion of intestine has been discharged from the bowels. Most of the other instances where cure has been effected have been those in which the operation of colotomy has been performed for obstruction in the great intestine.

Excluding these two classes of cases, it may be said that intestinal obstruction is very often a fatal affection except in those examples in which the obstruction is within reach of a bougie or rectum-tube. It comes then to be a very serious question at what time a surgeon is entitled to perform an operation with the view of exploring the abdominal cavity and endeavoring to ascertain the cause of the obstruction, and, if practicable, to relieve it. I wish here to exclude all reference to colotomy, as it is applicable only to cases where the obstacle is in the descending or sigmoid colon or rectum, and which presupposes a knowledge of the position of the affected part. I wish to direct attention to cases where the symptoms of intestinal obstruction are present where there is no evidence of stricture or other contraction of the rectum or lower part of the great bowel, where remedies have failed to relieve, and where the progress in a downward direction is clearly going on. Are we, from the difficulty or impossibility of defining accurately or at all the true cause of the obstruction, to resign the patient without a chance, or are we entitled to perform a dangerous operation in the mere hope of affording relief? It has happened to myself to see the post-mortem examination of at least one case where the relief to the condition giving rise to the symptoms would have been attended with no difficulty; the danger of the operation would have arisen altogether from the exposure of the peritoneal cavity, and the exhaustion produced by the previous symptoms.

If our diagnosis could be rendered more clear, if we had any means of distinguishing cases of ileus from intussusception, internal hernia, strangulation by bands, and awkward twists of the intestinal tube, then we could with some probability of success choose out the suitable cases; but, unfortunately, it seems impossible to point out any well-marked line of demarcation, in the symptoms, between these very different conditions. Mr. Phillips, in the paper referred to, after relating an example of death from intestinal obstruction depending on each of the above-named pathological conditions, observes: "The impression which must be produced by reading the preceding cases is this, that, no matter what may be the cause of the obstruction, no certain remarkable difference is observed in the more prominent symptoms by which it is accompanied. There are, in all, abdominal pain, abdominal tension, obstinate constipation, and sickness; but in the mode of their occurrence it would be difficult to point out any distinct difference." Nevertheless the author referred to comes from the study of the whole subject to the following conclusion, with which, I presume, few will be found to disagree—namely: "That interference by surgical operation is justified when three or four days have passed without any relief from ordinary means, provided the constipation be complete and the vomiting of fæcal matter continue, because it affords a greater chance for the preservation of life than ordinary means."

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* Read before the Glasgow Medico-Chirurgical Society.

"The conditions which justify this operation are, a sudden attack of pain, followed by desire to be relieved, but with no action of the bowels, and persistent vomiting; and if little or no tenderness on pressure should exist, constipation must be complete, and must have exceeded a period of twenty-four hours, in company with all the above symptoms. It must be borne in mind that the amount and character of the pain are very important symptoms in these cases. If the strangulating orifice happens to be very small, or the band very tightly applied over the bowel, so that strangulation shall be very complete in the onset of the symptoms, it will be marked by great suffering, irresistible vomiting, great anxiety and restlessness, and complete constipation. Under such circumstances delay in operation is dangerous. We cannot afford to wait, if we hope to secure ultimate relief; death will occur in three or four days if some attempt be not made to remove the cause of obstruction by opening the peritoneum." I have used these words of Mr. Pollock because I think the case could not be more clearly stated, and because they entirely coincide with my opinion and experience.

There is just one other point of a general kind to which I wish to allude—namely, that surgeons are not now so afraid to expose the cavity of the peritoneum as they were formerly. The experience of ovariotomy and the precautions which have been gradually introduced in connexion with that operation have rendered the treatment of wounds in the abdominal walls much more satisfactory than it used to be, and we need have no hesitation in performing gastrotomy so far as the wound of the peritoneum is concerned.

As I shall not revert to the operation again further than to relate that which I performed, I may here state that there is no tissue which affords a more perfect example of immediate union than the peritoneum. In closing wounds in the peritoneum the stitches are so applied that the surfaces of the peritoneum for a quarter of an inch from the edge of the wound are brought in contact, and the result is firm adhesion in an incredibly short time. I have seen the post-mortem examination of a case in which a wound in the peritoneum was made within twenty-four hours before death, and the peritoneal surfaces were found firmly united. This prevents any discharge from the more superficial part of the wound which sometimes occurs from entering the peritoneal cavity, and accounts in part for the success of the more recent peritoneal operations.

I shall now shortly relate the case which has called forth these preliminary remarks.

Mary K——, domestic servant, aged twenty-nine, a healthy, well-made woman, retired to bed on Feb. 17th in perfect health, after having taken supper, which consisted of bread-and-butter and porter. At 2 A.M. she was awakened by a severe pain over the region of the stomach; she felt all over stiff, and presently she vomited part of the contents of the stomach. The vomiting returned several times after brief remissions of ten or fifteen minutes, and was accompanied by severe pain in the abdomen. Her mistress, becoming alarmed, procured the assistance of Dr. M'Carron, who was in attendance by 3.30 A.M. He informs me that he found her still vomiting at intervals, complaining of the epigastric pain, which was of a spasmodic kind, shooting upwards to the right hypochondrium and towards the shoulder. On examination, Dr. M'Carron found tenderness on pressure above the umbilicus; pulse soft and compressible; tongue moist; no fever; and the breathing in the intervals of the spasms apparently normal. She lay on her left side for the convenience of vomiting, but she could lie also on the right side, and, except when the fits of pain and vomiting occurred, she could lie with her limbs stretched out. Her mistress informed Dr. M'Carron that she had frequently suffered from what seemed to be stomach ailments; and that her mother and sister had died from similar attacks—in the case of the sister, after an illness of only twenty-four hours. The patient was therefore not only in great suffering, but also in great alarm as to the result. To relieve the symptoms described, fomentations as hot as could be borne were assiduously applied, and a full dose of ether and laudanum was administered with the view of allaying the spasm. Under this treatment she enjoyed comparative ease for several hours. She had a little brandy once or twice, and in the morning some beef-tea in small quantities; but usually this brought back the spasms and vomiting. Ice, with and without brandy, was then given. On the night of the 18th, about twenty hours after the onset of the attack, a large injection of soap and tepid water was administered, which only excited the spasmodic pain, and was soon ejected without any feculent matter. An anodyne draught of ether and laudanum, though in most part rejected, was retained in sufficient quantity to give partial relief. During the 19th she continued in much the same state, vomiting at intervals, especially after she swallowed anything. She made several ineffectual attempts to relieve the bowels, but was able to pass water. On the evening of the 19th there was great tenderness of the abdomen, which condition seemed to extend to the extremities, for any movement was attended with great pain and the patient could not bear to be touched. Several doses of Dover's powder were given at intervals, but were uniformly vomited as soon as swallowed. To relieve the severe abdominal pain, a large fly blister was applied to the abdomen. The blister vesicated well, but without relieving the distress; and before 4 A.M. on the 20th, after much sickness, vomiting of stercoraceous matter began. During the day Dr. M'Carron, perceiving that matters were rapidly assuming a very grave aspect, suggested that I should be sent for; but the patient and her friends who had come to town, dreading the prospect of an operation, which Dr. M'Carron told them might be the only thing left to be done, refused permission.

The stercoraceous vomiting continuing all night, and the patient being now greatly exhausted, I was sent for at 11 A.M. on the 21st, three days after the sudden onset of the attack. The patient was in the following state. When I arrived she was in the act of vomiting the contents of the intestine, which had a most offensive smell. It seemed to cause her great suffering, as she moaned continuously. Her voice was husky; her countenance anxious and pale; her extremities were cold; her pulse was weak; and she was restless and uneasy in whatever position she lay. The abdomen was distended with flatus; but the most careful examination that I could make failed to enable me to ascertain any point to which I could refer the seat of the obstruction. The copious injection given by Dr. M'Carron two days before, which had been easily introduced by a rectum-tube, seemed to show that the obstruction was not in the lower part of the great intestine; and the symptoms generally pointed rather to the small intestine than to any part of the colon.

It was clear to me and to Dr. M'Carron (who had most carefully watched all the symptoms from the very onset) that we had to do with a sudden obstruction of some part of the small bowel; that the symptoms were becoming rapidly worse; and that there was no prospect of any other than a fatal termination. We therefore explained the nature of the case to the patient's father, an intelligent man, who with his son had come to Glasgow to be of what service they could. We said that the only hope that remained was to open the abdomen in the chance of finding the cause of the obstruction, and, if it proved of a kind that admitted of relief, to afford that relief; that the operation did not give any more than a possibility of success, and that the reresult was so problematical that we could do little more than lay it before them; that they must consider it along with the patient (who was still quite sensible), and if they resolved to accept the possibility, I was quite ready to perform the operation; and that, as the patient had been hitherto a healthy young woman, we would urge them to allow us to have recourse to the only means now open to save life. The patient and her friends having consented, with the assistance of Dr. M'Carron, Mr. H. E. Clarke (my demonstrator), and Mr. M'Gregor (my house-surgeon), I proceeded to perform gastrotomy as follows:—

The patient having been put under the influence of ether, I made an incision about four inches in length from the umbilicus downwards, dividing the tissues in succession till I came to the peritoneum. This I then carefully slit on a director to the same extent. As soon as an opening was made in the peritoneum a quantity of turbid serum flowed out, which was collected in a glass vessel. As long as it continued to flow, the abdomen was gently pressed on; and there was collected about a pint of this fluid. It had very much the appearance of whey, with flocculi, like pieces of curd, floating in it. It was very acrid, smarting the skin when it came in contact with the hands. When most of the fluid had escaped, I held aside the lips of the incision to examine the abdominal contents. Just beneath the wound the small intestine was arranged in transverse folds, and was retained in that position by recent peritoneal adhesions. At one point it was turned so abruptly on itself as to convey the idea that here the calibre of the canal must be very narrow, if not altogether occluded; but there was no visible difference between the condition of the intestine above and that below the acute twist. Not being quite satisfied that the cause of the symptoms was in view, I introduced my right hand, and made a systematic exploration of the abdominal cavity. I first gently undid the peritoneal adhesions of the folds of bowel in view, and found that they could be separated without injury to their structure. I then commenced, as nearly as I could judge, at the upper end of the jejunum, and passed my hand over all the small intestines, pulling those lying in the pelvis with a slight jerk, in case there might be any pelvic hernia; but there seemed to be no adhesions other than those of the folds to each other, which were easily unraveled. The intestinal tube seemed to be pretty equally distended with flatus; and it required the hand of an assistant to keep the bowels from protruding from the abdominal cavity. The examination of the colon yielded equally negative results. I could discover no seat of stricture nor any bands or loops. It was also distended with flatus, but not to the same degree as the small intestine. Having failed to find any structure I could divide or otherwise interfere with, I judged it imprudent to continue the examination further; but before closing the wound I sponged out the pelvis in the way I have been in the habit of doing in ovarian operations when there is reason to believe that any blood or other fluid has escaped into the abdominal cavity—a precaution which I believe to have been attended with the most important results. By this means any of the acrid serum which may have remained in the pelvis was removed, and the peritoneum thus placed in the most favorable condition for recovery. The wound was closed by three deep and three superficial silver-wire sutures; the deep ones being passed through the abdominal walls half an inch from the edge of the incision in the skin and a quarter of an inch from the edge of the incision of the peritoneum, to insure immediate union of the peritoneal surfaces. The wound was covered with long broad strips of adhesive plaster, to prevent the movements of the abdomen interfering with the adhesion of the wound.

A hypodermic injection of morphia was given, and the patient was enjoined to abstain from all food, solid or liquid. A few drops of brandy were ordered to be given every two or three hours; and, to allay thirst, which had been excessive, the lips to be wetted with a bit of ice.

At 6 P.M. I visited the patient, along with Dr. M'Carron. To our surprise, she had been much relieved since the operation. No return of the vomiting; the abdominal pain and general distress much less urgent; pulse 120, soft; heat now returned to the extremities; thirst still urgent. To continue the drops of brandy and the ice; and to have an injection of sixty drops of laudanum, repeated during the night if necessary.

Feb. 22nd.—Had little sleep, but feels comfortable; pulse 110, soft; thirst moderate; no return of the vomiting. To have small quantities of beef-tea.—8 P.M.: Feels easy; has passed urine.

23rd.—This morning had a passage from the bowels, the dejecta being hard fæces with dark offensive liquid.—10 P.M.: Has had passage from the bowels twice since morning, of the same character.

24th.—Continues favorable; no discharge from wound.

From this date, with occasional variations, the patient made a gradual recovery. The stitches were removed on the seventh day, and the deep part of the wound was found quite united; the edges of the skin being in some parts separated, probably from the incision having been made in the seat of vesication from the blister. But union soon occurred throughout. Considerable trouble was experienced in getting her to take food, chiefly from the pain she felt in chewing or swallowing, the mucous membrane of the lips, tongue, and palate having been excoriated with the acrid matters she had been vomiting from the date of the attack to that of the operation; but by giving small quantities frequently that difficulty was overcome.

A few days after the abdominal wound was completely united, and when the patient was anticipating being ordered to sit up out of bed, she had a curious attack of pain, swelling, and œdema of the left limb, tenderness along the course of the saphena vein, and enlargement of the inguinal glands—a condition which had many analogies to phlegmasia dolens. By fomentations, elevation of the limb, and subsequently bandaging, this condition was overcome, and the cure was then complete.

On reviewing the various points of interest in connexion with this remarkable case, I confess to having two very opposite feelings: the first, that of satisfaction at the fortunate result of the operation; the other, that of disappointment at not having met or recognised any tangible abnormal condition to account for the symptoms.

I presume it will be admitted that here were all the well-known signs of intestinal obstruction; that these had continued sufficiently long to make the hope of spontaneous recovery extremely small; that the rapidity with which they were increasing and telling on the general state of the patient called for immediate action, if at all; and that the patient's condition of extreme danger justified our having resort to a surgical operation, even if it had been attended with the fatal result which I dreaded. I felt then, and still feel, that I could not withhold from the patient what I believed to be her only chance of safety.

I am aware that a certain number of cases of ileus—that is, cases presenting symptoms of intestinal obstruction—get well spontaneously, in what way has not been very accurately found out; but there are few, if any, in which stercoraceous vomiting has gone on uninterruptedly for more than forty-eight hours which have not terminated fatally; and it is a question of importance if some of those fatal cases might not have been saved by a resort to surgery before the vital powers had been reduced to too low an ebb.* It is true that it is a most unsatisfactory proceeding to make an incision into the abdomen without having a clearly defined notion of what one will meet with; but that is the whole interest of the question. The very same symptoms, occurring in the very same way, may arise from some unknown condition which in a few instances terminates spontaneously in a favorable way, while in others they arise from an abnormal condition, recovery from which is in some cases impossible, and in many others is only possible by a surgical operation. I submit, then, that in the case related the urgency of the symptoms, and their steady increase in violence, gave us good grounds for the opinion we formed. The patient, in fact, was nearly as possible in the condition indicated in the extract from Mr. Phillips's paper to which allusion has been made.

But the next point of interest is, what was the cause of the obstruction in this case?—and how was it that the whole of the symptoms were relieved immediately after the operation? I confess I cannot give a decided answer to this to my own satisfaction. First, the obstruction may have arisen from a knuckle of intestine strangulated in some way which I did not find out, and which may have become disentangled during the process of unraveling all the folds of the intestine without my being conscious of having disentangled it; or it may have arisen from the very sharp angle at which one or two of the folds of the small intestine were bent on each other—glued, as they were, in this position by recent lymph,—which angular twists were undone when I passed the coils of bowel through my fingers; or, lastly, may it be possible that the whole of the symptoms arose from the presence in the abdominal cavity of the acrid, whey-like effusion, the result of peritoneal inflammation, although stercoraceous vomiting is so rarely a concomitant of uncomplicated peritonitis as to make the last supposition very problematical? I was led to hazard this explanation in default of the first two before I was aware that Mr. Hancock had proposed a similar operation in a paper read before the Medical Society of London in 1848. In a case of disease of the appendix cæci which caused peritonitis, and also caused a circumscribed swelling in the right iliac fossa simulating a pericæcal abscess, Mr. Hancock made an incision into the abdomen, and gave exit to a large quantity of greenish flocculent serum, with decided relief to the symptoms, and ultimate cure of the patient; and, in his remarks on the case, he says: "I trust the time will come when this plan will be successfully employed in other cases of peritonitis;......cases where the effused fluid destroys rather by its character than its quantity;......where the sinking and typhoid symptoms depend on the presence of the offensive fluid in the peritoneum."

This same idea occurred to myself immediately after the operation, when I reflected that, whatever might have been the cause of the stercoraceous vomiting, one thing was obvious—that recovery from a peritoneal attack which left such offensive acid fluid in the peritoneal cavity was clearly impossible, and that the operation afforded a chance of recovery which otherwise the patient would not have had. It is quite clear that the presence of that greenish flocculent serum which was sponged away would have given rise to typhoid symptoms, independently of any other condition. Still, however much the operation may have prepared the way for the patient's recovery by the removal of this fluid, it is obvious it could not have been the cause of the stercoraceous vomiting; and I incline to believe that the angular twist of the small intestine, which I unraveled and left free in the abdominal cavity, was really the cause and seat of the obstruction.

In whatever way, then, it may be explained, the fact remains, that up to the moment of the operation the patient was vomiting stercoraceous matter, with rapidly increasing signs of collapse; immediately thereafter the vomiting ceased and a rapid improvement of all the symptoms took place—effects which, I submit, are fairly attributable to the operation of gastrotomy.

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* A very interesting case is recorded in THE LANCET for 1861, by Prof. Gairdner, and some others in Dr. Brinton's book.

ON CATARRH OF THE HUMAN BLADDER.

By Dr. B. Kraus,

Editor of the "Vienna Medical Times," etc.

(*Translated by* J. P. Steele, B.A., M.D. Edin.)

Numerous as have been the monographs and clinical reports upon the origin, the character, and the treatment of this widely prevalent disease, the subject is far from having been exhausted; while, as to its therapy, every practitioner must be sensible that there are many desiderata which science has yet to make good.

The most frequent originative cause of bladder catarrh must be looked for in the spread of the gonorrhœal product from the urethra to the vesical mucous membrane—a cause to which the mode of treatment materially contributes. When the cure by injection has not been practised *secundum artem;* when injections are used which do not operate effectively; when, in order to blunt the patient's sensibility to pain, narcotics are combined with the injected liquid, so that, at the moment of injection, the muscular coat of the mucous membrane fails to contract quickly,—there is induced by the narcotic a paralysis of this coat and of the constrictor vesicæ; so that it frequently happens that, through the injection, the gonorrhœal secretion, together with the liquid, is forced into the bladder, and there infects the mucous membrane. There is developed in most cases, particularly in chronic gonorrhœas, a slight, painless catarrh of the bladder, but rarely an acute cystitis.

The diagnosis of such catarrhs can often be made only through an examination of the urine. This excretion at once loses its acid reaction, is at first neutral, and presently becomes alkaline; while, under the microscope, may be seen, floating free in the urine, epithelium cells, and, if the urethral secretion is purulent, pus-cells. Such is the commencing bladder-catarrh, which, producing in the patient no subjective sensations, may go on for a whole year after the cure of the gonorrhœa, without his having any knowledge of his condition.

The greater number of chronic bladder catarrhs originate in gonorrhœal contagion. In prolonged catarrh, the vesical mucous membrane, just as in influenza, begins to secrete mucus, transparent masses, usually of a yellowish-green color, which fall down to the fundus of the bladder. So long as that organ retains its contractile power, these, in combination with the urine, are voided unobserved, and rarely give annoyance.

The catarrhal affections of the bladder are sporadically visible on its surface, from the size of a lentil to that of a crown-piece, and show the anatomical alterations described by Rokitansky. They are troublesome to the patient only when, as is most frequently the case, they are situated around the orifice of the urethra, since the gonorrhœal secretions, especially when they have acquired some consistence, generally come in contact with these parts. These catarrhs, occurring even in youth, are commonest in manhood, when they are usually contracted. It is not so easy to diagnose them, because, as already stated, the patient takes no heed of them till irregularities of function supervene.

The earliest of these irregularities appears in the patient's announcement that he cannot void his urine so quickly as he used to do; that he takes a proportionately longer time to micturate than was generally the case with him.

This symptom is a very essential one, and should never be undervalued by the physician. If it occurs after a preceding gonorrhœa, it may with more probability, even in the absence of urinary analysis, be referred to the pre-existence of a catarrhal bladder affection, an affection of such a kind that it must have already been of considerable duration and have induced some loss of tone in the muscular coat. Soon afterwards the patient, in the passage of the urine through the urethra, feels a titillation which arises from the catarrhal secretion becoming compacter and touching the walls of the bladder. The sensation is not like that of a foreign body penetrating the urethra, nor such as follows the introduction of an elastic catheter or bougie. It is, on the contrary, a not unpleasant sensation, which the patient explains as coincident with an unwonted feeling in making water. Seldom is he aware that in the process a mucous mass was voided.

If we investigate such urine immediately after it has been voided, we may see in it numerous adherent flakes, which, according to the nature of the catarrh, consist of epithelium and mucus-cells, cylindrical according to the shape of the urethra, and separated in the urine at the bottom of the chamber-pot; a deposit quite different from the catarrhal products in the case of commencing catarrhs, products which pervade the whole urine like a cloud.

Where the above-mentioned phenomenon, the cylindrical flakes in the urine to wit, is to be seen in the urine, we may safely infer an old bladder catarrh of considerable duration.

Bladder catarrhs are often borne for a very long time without the symptom of frequent desire to make water, which is adduced by most authors as the most significant one, being present at all. This symptom first declares itself when on many parts of the mucous membrane an acute process is developed, in which case we may diagnosé partial cystitis without the patient's complaining of pain.

The more frequent desire to micturate is of commonest occurrence when catarrh has its seat at the cervix of the bladder; and, even in the case of gonorrhœa, only at times when the sphincter is irritated. For even in the case of balanitic gonorrhœa, the more frequent desire to make water depends only on this condition, that after the single micturition, the residual urine along the urethra irritates the affected part, precisely as if a corrosive substance came in contact with it; and the desire to micturate lasts only so long as does the influence of the corrosive urine on the affected part. Therefore is it that the desire to make water is produced mechanically, while the more frequent micturition in the case of bladder catarrh is to be explained on grounds which we shall state hereafter.

A point hitherto little noticed is the form in which the vesical mucous membrane undergoes alteration. It can produce every development of inflammation—diphtheritis, and croup even of the bladder, not excepted.

All these forms of disease used to be registered by practitioners under the rubric "bladder-catarrh," but inaccurately so.

We will give these forms a further explanation, and subject to a closer scutiny the other originating causes of catarrh of the human urethra, and the peculiarities determined by them.

In the first rank may be considered the catarrhs which are produced by inorganic sediments, and present symptoms in the highest degree characteristic.

These sediments may either reach the bladder from the kidney as deposits, or may develop from the urine in the bladder. In the first case the manifold ailments of the kidney conduce to the production of sediments. In the second place the various conditions of the urine itself in febrile maladies become the causes of sediments in the same.

When the sediments are not abundant, they pass off with the urine, and occasion, if they are crystalline, especially on their first traversing the urethra, burning pains.

In such cases we may observe the following characteristic: the first portion of the collected urine gives an acid reaction, if the sediment containes bone-earth, the so-called triple phosphate of magnesia; while the last collected portion gives an alkaline reaction.

In a quiescent state of the bladder the above described phenomenon is constant; but a change occurs in it if the patient has moved about, and the sediments in the whole urine have separated.

These sediments play a prominent part in disease of the bladder, and possess the characteristic of less easily tending to the formation of concretes. Out of ten cases which came under my notice in the course of three years, there was no calculus-formation; and the bone-earth deposits in particular rarely tended to the production of calculus. The bone-earth sediments from the triple phosphate of magnesia are characterised by their dazzling white appearance, and in the dried state by the lustre of the pointed crystals. Rubbed between the fingers, the crystals wedge themselves into the epidermis, and puncture it not imperceptibly. In the moist, freshly-deposited state they are enveloped in mucus, and are, as before mentioned, excreted from the bladder in vermiform cylinders. They render the last portions especially of the collected urine milky-turbid, quite similar to the urine of the herbivora.

Not so is it with the uric-acid sediments. They are suspended in citron-colored urine, like particles of iron-rust; they fall at once in the collected urine to the bottom, isolated, and not cohering in lumps.

These sediments tend much more to calculus-formation, and if any coagulum, or any other organic substance, comes in contact with them, then they form, first a nucleus, round which the uric-acid salts group themselves; next, other ingredients of the urine, coloring matter, and so produce the uric-acid stone of the bladder.

It is interesting to note that the sediments of the first kind, though calculus-formation is the result, cause, in spite of their being softer, more pain than the last named sediments. This circumstance is modified as the stone increases in bulk, since the uric-acid concretions during their lodgment in the bladder, as also on their occasional passage through the urethra, cause infinitely severe pain. These circumstances, which may be called diagnostic as to the kind of sediments, even without urinary analysis, were till lately inadequately appreciated, and merit the greatest attention on the part of the practitioner, because, as we will demonstrate in due course, they are of undoubted importance for the treatment of this malady.

The remaining varieties in the formation of concretions are of subordinate value for the practitioner. If therapy is called in to do anything without instrumental aid, it has to deal simply with these two chief forms above mentioned; and it may be said with demonstrative certainty that in this malady, as well as in the vesical catarrh determined by it, a reactionary therapeutical course is crowned with success, particularly when the practitioner has investigated the source of the sediments and of the catarrh, expiscated the seat of the malady, and on the path of experiment has created for himself the certainty as to whether the catarrh or the sediment is the primary disorder.

Before we proceed to the mode of treating this abnormal condition of the uro-genital system, we must refer to some salient points which occur in the disease under consideration. It is impossible to hold quite apart from each other the two abnormal conditions—the morbid sedimentary deposit and the catarrh. In the majority of cases they go so completely hand in hand that they cannot be described separately.

In those cases in which the vesical catarrh is accompanied by pain in the kidney and characteristic renal colic, we may assume with confidence that the sediment formation has already been going on in the kidney, while the sediments reach the bladder through the ureters, and so produce catarrh everywhere in their course, affect the investing capsules and pelvic cavities of the kidney, cause the kidney itself to swell, and produce in it an abnormal hyperæmia, without any substantial ailment of the kidney being demonstrable. In this way we should represent to ourselves the origin of a *diathesis*, whatever may be its substratum.

From a cause unknown to us, there are produced, in the kidney superfluous triple phosphates, which are carried down into the bladder. From another cause, likewise unknown to us, superfluous uric-acid salts are contained in the kidney and carried down into the bladder. In these cases an otherwise healthy urine gives rise to the most excruciating pains. In the other case, again, there is a morbid and putrescent urine, which at one time produces bone-earth, at another the uric-acid salts.

As soon as the urine, after being collected, shows the alkaline reaction, we may be sure that the process has been going on in the kidney; but when the first collected quantity is acid, and the last collected is alkaline, me may, in the case of pre-existing triple phosphates, conclude that there is a formation of these sediments in the bladder itself. We are justified in the conclusion that the vesical catarrh is the primary, and the sediment-formation is the secondary disorder; while in the first case the sediment-formation is the primary, and the catarrh is the secondary malady. We may here make mention of two striking cases which confirm our view of this disease.

Immediately after a very vigorous erection, a man in the most lusty old age felt stinging pains in both kidneys, with the most pronounced symptoms of renal colic.. For ten years, with the above-described diathesis, he suffered from abnormal bone-earth deposit, spent whole nights in high fever with distinct strangury, could not pass his urine without considerable pains, and, when it did take place, only in drops. During twelve hours he has scarcely passed two ounces of urine. The catheter, seven-eighths in diameter, though passed without pain into the bladder, brought off no urine. The violent pains, the high irritability in the region of the kidneys, necessitated, in this robust case, the employment of twelve leeches after opiates had been administered in vain. After six hours more a copious sweat set in. The patient slept, but was awoke by a violent scalding urinary pain, and passed two conically-pointed pea-sized concretions, which on close inspection contained pure triple phosphate cohering by epithelium. These sediments had remained fixed in both ureters, had stopped the flow of the urine, had produced strangury by their irritation, and had doubtless been formed in the kidney itself.

A second case was that of a vigorous man of fifty-one who had suffered from substantial stricture of the urethra. It affords proof that a quite similarly constituted concretion was formed in the bladder, as it was considerably larger than the previously mentioned one, without having any renal symptom in consequence. Owing to the widening of the stricture by urethrotomy it was ejected with the first dense stream of urine from the bladder. It had not the conical shape of the first-mentioned concretion. On examination it was found that, besides this concretion, there was not to be discovered a single trace of any other stone in the bladder.

A dangerous symptom in the case of this concretion deserves the peculiar attention of the practitioner—to wit, the swelling of the urethra, which is capable of simulating a stricture in its full significance, often lasts for a week, and originates purely from the irritation of the urethra by the crystals.

Distinguished surgeons have been misled as to the nature of this swelling, having confounded it with a substantial stricture. The variation in density of the urinary stream must be taken into account. In the so-called organic strictures variations in the density of the urinary stream occur but seldom; in the soft strictures, if we may so designate them, the density of the stream alters from day to day, even from hour to hour. Indeed, the passage of the urine may be totally suspended for hours, and even for two days.

The introduction of the catheter is in certain cases very difficult; the elastic catheter is simply not to be passed, the metallic one only with the greatest dexterity and caution. On this circumstance, also, but very little attention has been bestowed in monographs on uro-genital maladies. We could cite some cases in which *periculum in morâ* was present through this swelling of the urethra, and in which the death of the patient might very easily have been brought about if reliance had been placed on the assertion of the patient, who denied *in toto* the presence of a stricture. Such a swelling was produced in an individual affected with a vesical catarrh, and the above-described sedimentary formation. He felt one day after micturition an acute pain in the latter third of the urethra, the sensation being like that of an impacted foreign body. He was nervous, particularly from the fact that he had often urinary distress, and could not void a drop of water. This condition lasted from three in the morning till ten in the forenoon. He took a bath, but micturition was impracticable; surgeons being called were as unsuccessful as himself in introducing the catheter; while the bladder became more and more distended. In consequence of the attempted catheterism hæmorrhage of the urethral mucous membrane was caused, but no urine came. By a gigantic effort in the bath there was pushed out of the lower fourth of the urethra a plug of the bulk of a middle-sized leech.

A CONTRIBUTION TO THE

SURGERY OF BLEEDING VESSELS.

By Alex. Ogston, M.D.

In a former paper (The Lancet, 1869) I adduced a number of experiments bearing on the subject of the comparative strength of arteries secured by ligature, acupressure, and torsion, from which it appeared that ligature was by far the most secure method, resisting the highest column of mercury (114 inches) brought to bear upon it by the dynamometer, while acupressure and torsion resisted on an average respectively a column of 23·5 and 13 inches. These experiments were criticised at the time by Mr. Lawson Tait, but I still venture to affirm that they give a fair comparison of the value, as far as security goes, of the different methods. Excepting the assumed normal pressure of blood in living vessels, which was, I believe, stated at too high a figure, the only factor omitted by them is that of the elasticity of, and additional security furnished by, the portion of tissue included along with the artery between the pin and wire when acupressure is performed, and which protection accounts for the inner and middle coats of the vessels being, as is alleged, not cut through by this method.

These experiments have not been continued as originally intended. They are sufficient evidence as they stand, and they gave place to a new line of experimentation undertaken with a view to improve upon, or add to, our present methods of arresting bleeding from cut vessels.

That none of our present modes is entirely satisfactory cannot be denied. Torsion seems, in some hands, to have given marvellously good results; but, having had no opportunity of witnessing it as applied regularly to large vessels, I can only say, under liability to correction by those who have tried and adopted it, that the small amount of internal pressure resisted by it forms a serious, although the only, objection to its use. In Aberdeen, on the contrary, we have abundant opportunity of studying acupressure, and the result of my own observation is to convince me that it cannot retain the place originally claimed for it in operative surgery. The one real advantage that it possesses is that it allows the wound to be freed from foreign bodies one or two days after operation—doubtless a very important matter, but which can be attained without its employment. The asserted frequency of primary union in wounds treated here by it, and the absence of suppuration in such wounds, are to a certain extent correct. In amputations of the mamma it yields first-class results, primary union and absence of pus being generally achieved; but in other amputations suppuration occurs just as usual, the statements to the contrary being due partly to the great enthusiasm of its advocates, and partly to a careful nurse removing, as far as possible, all traces of discharge before the visit of the surgeon.

Acupressure has several disadvantages. The pins frequently prevent complete closure of the wound at the time of the operation, and at the edges have to be accurately adjusted at a subsequent period. The removal of the wires requires a considerable degree of traction, and, in the employment of the ring-loop, is sometimes a matter of difficulty; while, in at least one recent instance, an acupressed vessel in an amputation wound required, owing to secondary hæmorrhage, the subsequent application of the ligature. The estimate of acupressure I have formed is similar to that of many other surgeons who have given it a trial.

Considering, then, the superior strength of ligatured vessels, it would be a step in advance could the ligatures be applied in such a manner as to retain their superior security, and yet so as to allow of their being removed about the second day after operation, before the tendency to suppuration has commenced in the wound, and also so as to avoid snaring off the ends of the arteries and the tissue grasped by the forceps in the usual mode of applying them.

All these advantages are combined in the method I have now to propose—namely, that the bleeding vessels be secured by the knot depicted in Fig. 1, which, if it be run close, and the short end be cut off close to the knot, can be removed by very moderate traction on the long end. The knot, it will be perceived, is merely the "thumb or overhand knot," similar to the first part of the knot ordinarily applied to arteries, with the single exception of a loop of the long end being employed instead of the undoubled cord. Its hold is perfectly sufficient when tied, but I shall afterwards come to discuss its security.

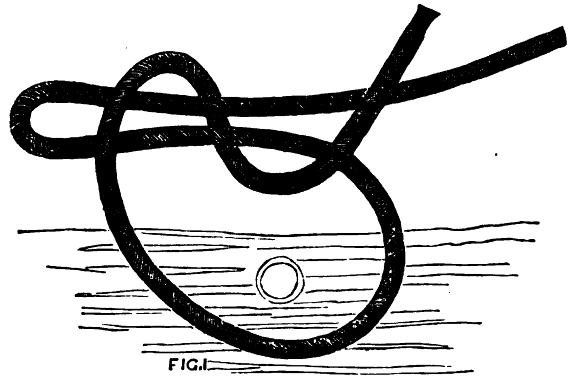

FIG.1

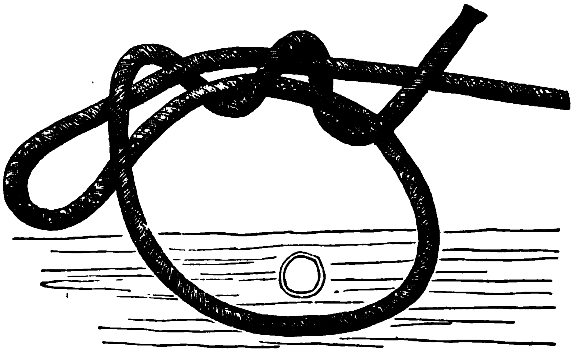

FIG.2

In applying the knot to the flaps of an amputation wound, the following is the method I have adopted:—A piece of *the strongest* ligature silk, well waxed to diminish the risk of slipping after it has been tied, has one of its ends passed an inch or thereby through the eye of a curved needle. (A few such armed needles are prepared before the operation.) The bleeding vessel being seen, and its course above the orifice estimated, the needle is entered from the raw surface of the flap, a quarter of an inch on one side of the course of the vessel and the same distance above the bleeding orifice; then passed down behind the vessel so as to include it between the needle and the raw surface of the flap; and, having crossed behind the vessel, is brought out a quarter of an inch on the other side of its track. The needle is next drawn through, bringing a couple of inches of the thread with it, as in Fig. 3, and it may then be detached from the thread. A loop of the long end, an inch or thereby in length, is then used to form, with the single short end, an ordinary "thumb knot," as in Fig. 1, or, if additional security is required, a double knot, as in Figs. 2 and 4. The knot is closed upon the vessel and included tissue by traction on the loop and short end; the strands of the loop are placed close to each other, so as to lie in contact throughout and offer no obstacle to removal when the long end is pulled; and, finally, the short end is cut off close to the knot.

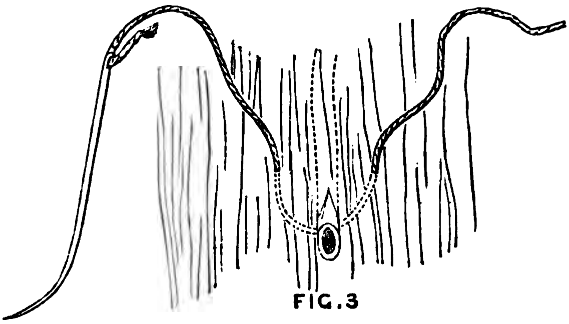

FIG.3

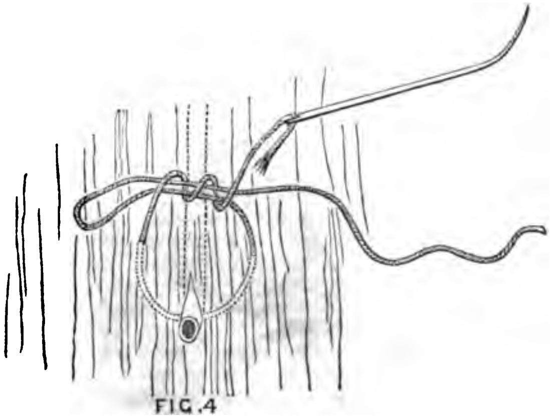

FIG.4

Such knots do not slip till traction is made on the long end, which ought to be brought out at the side of the wound next the original point of entry of the needle, and not doubled again over the vessel; and, correspondingly, the loop is laid suitably directed away from the vessel in the direction of the needle when it emerged at the further side of the artery. In small arteries the single knot is amply sufficient; in large arteries I use the double knot for the sake of security. The ligature is removed, on the second day after the operation, by gentle traction on the long end; and the amount of force required for its removal, while too great to be readily effected by accident, is, notwithstanding, less, even with the double knot, than that needed to remove the wire where acupressure has been employed.

The advantages of this proceeding consist in the speedy removal of foreign bodies from the wound, and in the fact that no tissue is compressed or strangled by it save the portion lying in the very knot itself. The distal end of the vessel is still in connexion with the living parts surrounding it, and its nutrition is not interfered with.

The strength of the method is another of its advantages. Vessels experimented upon in the manner given in detail in my former paper, resist, when secured with the single knot, from 24 to 70 inches of mercury; and, on an average, 39 inches of mercury, or pressure of 19 lb. to the square inch, as against 23·5 inches of mercury with acupressure, and 13 inches with torsion. The double knot resists the full column admitted of by my dynamometers—viz., 114 inches of mercury, or 57 lb. to the square inch. I have tested in animals this application of ligature to cut vessels, and to vessels deligated in continuity, before using it in man, and the results were perfectly satisfactory. In man they have hitherto been equally so. I have at present a stump after Pirogoff's amputation treated in the above way, where the ligatures were removed on the second and third days, and which is healing with as small an amount of discharge as I ever saw obtained, even with acupressure.

The disadvantages are, that, as in acupressure, some tissue is included along with the vessel; and where structures such as important veins and nerves run parallel to the artery, damage might be done by their inclusion. Thus it is best suited for amputations; indeed, without further experience of it, I should hesitate to employ it in the deligation of an artery in continuity upon a human subject. I have had no opportunity of testing it in that most difficult of all vessels to secure, an interosseous artery in the angle of a flap amputation, but believe that, by laying hold of the bleeding orifice and the tissue surrounding it, and then proceeding, as in a flap, to pass the needle behind it through the grasped mass, it would answer as well as the ordinary ligature.

Aberdeen, April, 1871.

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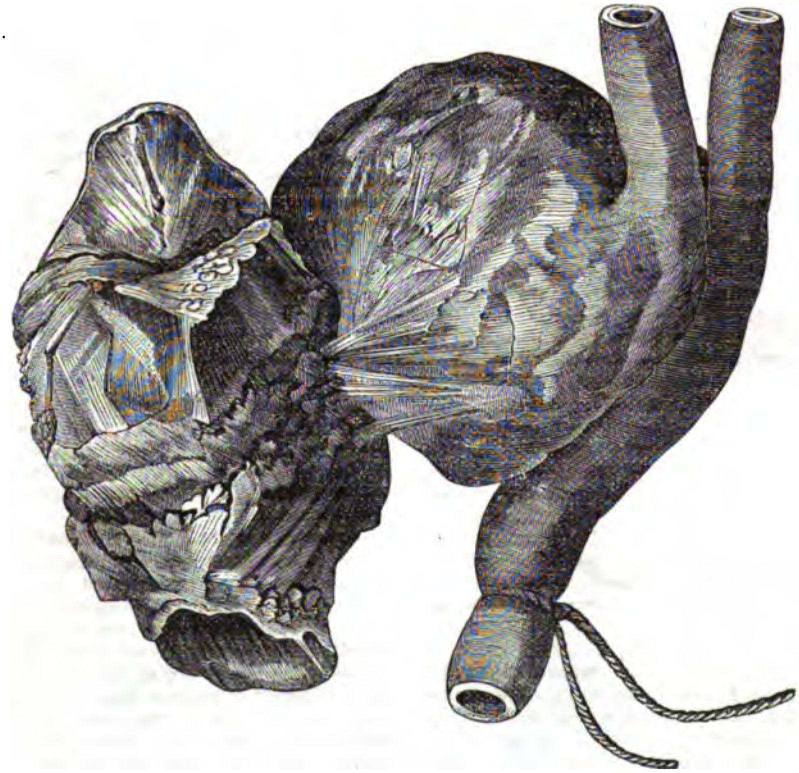
LIGATURE OF THE COMMON CAROTID ARTERY FOR ANEURISM; DEATH FROM CANCER OF THE RECTUM.

By Sampson Gamgee, F.R.S. Edin.,

Surgeon to the Queen's Hospital, Birmingham.

The subject of this report was sent to me by Mr. Sainthill Pearse, of Brierley Hill. I transcribe an abstract of the notes taken, on the patient's admission into the Queen's Hospital, by the Rev. T. Gregg, one of our students.

March 13th, 1871.—Uriah M——, aged fifty-five, a miner. Always enjoyed good health, with the exception of an attack of rheumatic fever seven years since. About three weeks ago, when at work in the pit, he felt a pain in the back of his neck and shoulders, without being able to account for



it. The pain increasing, and a swelling being noticed in the left side of the neck, he consulted Mr. Sainthill Pearse, and left work on the 7th March. Appetite good, but feels pain in swallowing, which grows worse.

The tumour, visible over the left common carotid artery, extends from a little below the middle of the sterno-mastoid to the angle of the jaw, and from the left upper border of the thyroid cartilage to three inches backwards. Heart-sounds normal; pulse 76, equal on both sides.

On inspection, pulsation is distinctly visible. On palpation, a distinct thrill is felt in the tumour, especially over its posterior part nearest the carotid track. Expansion is easily felt by pressing the tumour laterally between the finger and thumb. On auscultation, two kinds of sound are clearly audible through the centre of the swelling; one being produced by the rush of air through the larynx, the other a loud rushing murmur due to the passage of blood; the former bruit perfectly synchronous with respiration, the latter with the motion of the heart. On pressing the carotid artery below the tumour, the pulsation is considerably diminished. There is neither swelling nor pain in any other part of the body.

The diagnosis of the aneurism was at once clear beyond the possibility of error. Equally evident was it that only one thing offered a chance of saving the man's life, and that was ligature of the common carotid. But, as I observed more than once to the class at the bedside, the man's look was unsatisfactory—sallow and unhealthy. So much did I dislike his appearance, without being able to account for it, that I declined to operate one morning when the case was set down in the list of operations to be performed. The aneurism symptoms where not urgent at the time, and I waited the effect of complete rest and good care, with which the man did certainly improve a little in general condition; but the growth of the aneurism and the rapidly increasing difficulty in swallowing and breathing forbad longer delay.

Operation.—I tied the left common carotid on April 15th. I applied a waxed thread ligature on the vessel below the omo-hyoid. Only one little vessel was tied in the line of incision, which was closed with three silver sutures, and a light compress of dry lint held in position by a couple of strips of adhesive plaster.

After the operation the pulsation in the tumour ceased for some three or four hours, when it could be again felt very slightly. The tumour seemed scarcely more than half its previous size, and the patient expressed himself as comfortable and free from pain. He could hear much better, and was relieved from the incessent buzzing noise in the left ear and from the difficulty of swallowing and breathing.

April 16th.—The patient feels much better. No pain in wound or tumour; pulsation in it is stronger, and thrill plainly felt. No headache. Pupils act equally.

19th.—Pulsation and thrill diminished; tongue furred; pulse 95. Patient feels no pain anywhere, but is unable to micturate. Catheter passed morning and evening, and about four ounces of highly colored urine drawn off each time.

20th.—10 A.M.: Pulsation still distinct; thrill barely perceptible, and that only in outer part of tumour, which is steadily diminishing in size; no headache; pupils act equally. Almost the whole of the wound has healed by the first intention; only very slight sanguineo-purulent discharge issues in the immediate neighborhood of the ligature. Dry lint dressing renewed. The catheter again used for the relief of retention.—7 P.M.: Is quite comfortable in head and neck, but complains of sharp pain in the abdomen, especially on the left side; pain recurs in paroxysms. Bowels constipated. To have a warm-water enema, and two tablespoonfuls of castor oil by the mouth, which in the course of an hour produced a copious motion. Linseed-meal poultices to be applied to the abdomen, and a third of a grain of morphia to be administered by subcutaneous injection.

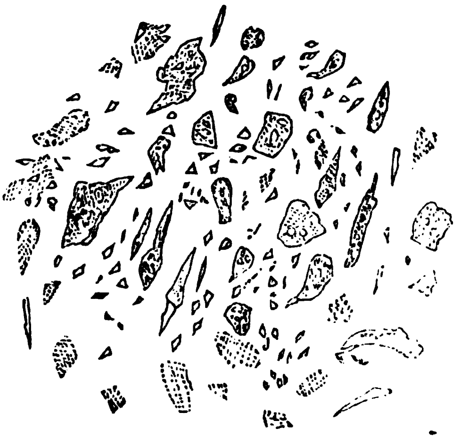
21st.—Abdominal pain very severe; knees drawn up in bed; the abdomen distended and tympanitic; pulse 130; extremities cold and clammy; face pinched, livid, and covered with perspiration. Is able to micturate, but with some difficulty. Symptoms of exhaustion increased, and death occurred at 7.35 P.M.

The register of temperatures throughout the case was taken by the resident surgical assistant, Mr. Wright Wilson, of whose notes I make an abstract:—

		Right Audit. Meatus.	Left Meatus.
April 15	12.20 noon (1 hr. aft. op.)	96·4°	95·4°
,,	1.20 P.M.	96·4°	96·2°
,,	3.50 P.M.	97·4°	96·4°
,,	6.30 P.M.	100°	98·8°
,,	8.30 P.M.	100·4°	98·3°
April 16:	8.30 P.M.	98·2°	98·4°
April 17:	8.30 P.M.	94·6°	94·5°
April 18:	... ...	92·5°	93°

At this date the temperature in the axilla had fallen to 98·3° from 101·8°, at which it stood the morning after the operation. At 8 P.M., April 19th the thermometer marked 98·8°, but it arose to 101·2° twenty-four hours afterwards, concurrently with complaint of sharp abdominal pain.

Autopsy, April 23rd, 10 A.M.—Very marked green discoloration on the front of the abdomen, especially on the right side, and on the corresponding half of the scrotum, the left half of which is of natural pink color, the demarcation of the difference at the raphé being very distinct. Crackling perceptible on pressure over the green discoloration; section through linea alba shows tissues discolored and infiltrated with fetid sanies and gas. Intestines generally glued together by recent lymph, and peritoneum, parietal and visceral, deeply injected. The subperitoneal tissue in the lumbar and pelvic regions greatly distended with gas; the true pelvis filled with semi-purulent feculent matter. On carefully removing the bladder and rectum, the former is found to be healthy, but the lining membrane of the gut posteriorly, an inch and a half from the anus, presents a circular patch of ulceration nearly three-quarters of an inch in diameter; the ulcer extends through the coats of the bowel, communicating with the cavity of the pelvis, and is situated immediately over a solid mass, two inches in length by one inch in depth; this mass has been deposited in the areolar tissue beneath and behind the rectum; on cutting through it in the middle line it presents a fibro-cartilaginous appearance, of a bluish-white color; it is very firm under the knife, and, on pressure, gives out a little opalescent juice. Our resident surgeon, Mr. Gilbert Smith, to whom I am much indebted for assistance throughout the case, has made a drawing of the microscopic appearances. Cells of all shapes were visible in the field, round, square, caudate, and fusiform, many with large and compound nuclei; between the cells granular matter and free nuclei abounded. The cancerous nature of the deposit was beyond question. Patches of atheroma were visible in the aorta. No disease in other parts and organs.



Examination of the aneurism.—The wound firmly healed with the exception of one-eighth of an inch, where the ligature emerges. The thread is firmly embedded in the coats of the artery, surrounded by plastic matter, at a point exactly one inch below the aneurism and three inches from the bifurcation of the common carotid. The dimensions of the aneurism are—latterly, two and a half inches; vertically, two inches. It presses against and is adherent to the larynx and pharynx, the former of which it overlaps a little on the left side. On opening the right external carotid from above, its cavity is quite free from clot, the lining membrane pink and smooth. The corresponding internal carotid at its margin is closed by a firmly adherent clot, which fills the cavity of the sac and extends down into the common carotid; in the sac the clot is reddish and rather soft, while in the common carotid it is white and much more solid and firmly adherent.

The coincidence of the two independent and formidable diseases is remarkable. Of the carotid aneurism nothing more need be said except that there is every reason to believe the ligature would have separated in due course without accident. Had there been reason to suspect cancer of the rectum, the artery must still have been tied to prolong life, which was in immediate danger from rupture of the bloody sac; but the fact is, we had no reason to suspect the disease of the bowel, and the man had distinctly denied pain in any other region of the body.

Birmingham, April, 1871.

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REMARKS ON A CASE OF

TRANSITION OF THE TESTICLE INTO THE PERINEUM.

By James E. Adams, F.R.C.S.,

Senior Assistant-Surgeon to the London Hospital.

My chief reason fc [illegible] before the sion is that it [illegible] a-tion has been undertaken for placing the gland in its proper position: in two of which the proceeding was accomplished, and the patients died from the effects of the operation; and in the third it was found impossible to complete the operation, and the gland was removed, which affords some argument in favor of leaving the misplaced organ alone during the earlier periods of life.

This case was brought to me at the London Hospital by Mr. T. Richardson, on Jan. 27th of the present year, the child being eleven weeks old. The penis was well formed. The right side of the scrotum was well developed, and contained a healthy testis. There was a distinct raphé, and, on the left side of it, a corrugated pouch exactly like healthy scrotum, but quite empty. The left testicle formed a smooth oval swelling in the perineum, to the left of the middle line, and half an inch in front of the anus. It was quite movable. The cord could not be felt, owing to a considerable thickness of fat.

Knowing that Mr. Curling was interested in these cases, and being anxious to have his opinion on the question of operative interference, I asked him to see the case in consultation. He expressed an opinion in favor of attempting to place the organ in the scrotum; so, with his assistance, I operated in the following manner. I first made an incision, about an inch and a half long, from the external abdominal ring over the empty scrotal pouch, which I carefully opened, thus preparing a bed for the testis. I then felt for the cord, and, having found it, followed it down to the testicle, taking care not to injure the tunina vaginalis. On making traction on the cord, it became apparent that there was some firm adhesion between the lower part of the testicle and the perineal pouch; this Mr. Curling suggested was the gubernaculum. I dissected down to its attachment, and divided it as far from the testicle as possible. I was then able to raise the gland, in its uninjured tunica vaginalis, and lay it in the scrotal pouch; and, to make it more secure in its new position, a catgut suture was passed through the gubernaculum and fixed to the bottom of the scrotum; the wound was then closed.

In order to avoid the additional risk of erysipelas, which was prevalent in the hospital at the time, I attended the child afterwards at the mother's own home, with Mr. Richardson. For the first two days the wound looked healthy, but on the third day the edges became sloughy, and there was a blush of erysipelas down the thighs and over the buttock and loins; it was also apparent that the urine and fæces irritated the wound. The child looked very ill. After this the wound gaped considerably, and there was no attempt at repair; the testicle, in its serous pouch, could be seen lying at the bottom of the sloughy wound. The child lingered on for a fortnight, but without any improvement in the wound, and died apparently exhausted. On examining the part, I found the organ firmly attached to the scrotum by the gubernaculum, and no trace of the suture could be found (satisfactory evidence in favor of catgut sutures). On detaching it and dissecting up the cord to the internal abdominal ring, I found that the funicular portion communicated with the general peritoneal cavity, and that there was a large quantity of purulent-looking fluid in the lower part of the abdominal cavity and in the tunica vaginalis. Hence it seems that death was caused by peritonitis, commencing in the tunica vaginalis and extending upwards.

This case is almost exactly like one described by

Mr. Curling, in which he operated, and the child died; but there is no account of any post-mortem. (Vide third edition of Mr. Curling's work on Diseases of the Testicle, p. 53.) Reference is also made to a case of Mr. Partridge's in which he attempted to replace the organ, and, failing, was obliged to excise it. There is in all cases of misplaced testicles a possibility, or even a probability, of the funicular portion of the peritoneum being patent, if not permanently, at least for some time after birth; but in Mr. Partridge's case, which was that of an adult, the serous membrane was closed; and Mr. Ledwich dissected the body of a man thirty-five years of age who had this condition, and in him also it was closed.

The chief arguments adduced in favor of early operation are: 1st, that the scrotum will not develop on the empty side, and that in the course of a few years it will become an impossibility to cover the organ with it; 2nd, that, as nearly all testicles found in abnormal situations are atrophied, there is a chance of the gland itself becoming useless; 3rd, it has been asserted that its position is inconvenient and painful, and that it is liable to injury.

The first of these propositions is undoubtedly true, as in all the cases described as occurring in adults the accounts state that the scrotum was entirely wanting on the side of the misplaced organ. This malposition of the gland seems, in one case at least, to form an exception to the general rule of misplaced testicles becoming atrophied, as the gland in Mr. Ledwich's case was of normal size, and its ducts contained spermatozoa; in Mr. Partridge's case, however, the gland was atrophied. The third proposition is only partially true, for several patients have reached adult life with this malformation, and without any inconvenience. In Mr. Partridge's case the patient, who was twenty-five years of age, was aware of the absence of his testicle from the scrotum and of the swelling in the perineum; but it gave him no trouble until, wishing to become an artilleryman, he found that it prevented his riding, and he therefore consented to its removal.

I am of opinion, therefore, that in these cases no operation should be undertaken during the earlier periods of life: first, because in very young children the wound must almost necessarily be frequently irritated by the urine, and because of the probability of the patency of the serous membrane and consequent risk of peritonitis; and, secondly, because the malposition may not prove to be of any inconvenience, unless the patient is destined to become an equestrian.

Finsbury-circus, May, 1871.

ON SOME DISORDERS OF THE NERVOUS SYSTEM IN CHILDHOOD.

Being an abstract of the Lumleian Lectures for 1871, *delivered at the Royal College of Physicians.*

By Charles West, M.D.,
Physician to the Hospital for Sick Children.

LECTURE II.

Dr. West's second lecture was chiefly devoted to the subject of Chorea. Girls are rather more liable to this disease than boys. Of the lecturer's cases, 64 per cent. were of the female sex. Girls and women are especially liable to the slighter forms of disease of the nervous system—neuralgia, hysteria, &c.; while in the case of acute hydrocephalus and the graver forms of disease, males preponderate. The cause of chorea, the lecturer believed, is not to be found in any invariable organic change, such as is implied in the embolic theory of Dr. Hughlings Jackson. It is rare for chorea to continue limited to one side. In 66 cases it was confined to the right side in 1, and to the left in 2. But it commonly begins on one side; and the side first affected usually, but not always, suffers more severely. Out of 66 cases observed by the lecturer, 20 were males, 46 females. In 14 the the right and in 14 the left side was first affected; in 1 case the movements were limited to the right side, in 8 they began on the right side and continued throughout more severe on that side; in 2 they were limited throughout to the left, in 3 they were severer on the left than on the right. In the remaining 38 cases the movements affected both sides from the first. The affection of the arms commonly precedes that of the legs when both sides are involved, but the legs recover first. It is rare for improvement to advance on both sides with equal rapidity. In 16 cases rheumatic symptoms accompanied or preceded the chorea. In 11 the heart-sounds were accompanied by a systolic bruit, which persisted after convalescence in 10. In 1 out of the 16, rheumatic symptoms with extensive heart disease followed in the course of the chorea. In 9 cases although no rheumatic symptoms were present, and there was no history of rheumatic affection, the heart was found to be already the seat of valvular disease. In two cases chorea came on during scarlet fever; in one of these the heart was not affected, and in the other the heart disease was so grave as to cause death. One instance occurred after measles, 12 were preceded by general failure of health, 1 instance was attributed to over-work, 6 to fright, and 1 with a temporary and 1 with a permanent cardiac bruit. In the remaining 19 no special cause was assigned. There does not appear to be any connexion between the presence or absence of rheumatism or heart affection, and the severity of the chorea or the tardiness of the recovery, nor any special disposition to the recurrence of chorea in those whose first attacks were associated with rheumatism; but there is undoubtedly a connexion between that state of constitution which predisposes to chorea and that which predisposes to rheumatism. Their true connexion is probably as yet unknown. Emotional causes, Dr. West believes, do not play so important a part in the production of chorea as is commonly supposed.

There are two forms of chorea over which mental and moral culture have a most salutary influence. In two classes of cases it is inapplicable—those of partial chorea, and those in which the movements are very violent. In the latter case splints on the legs and arms, and swathing the body completely in a soft bandage, will often, by restraining the movements, greatly diminish the resulting fatigue. But between these two there is a large intermediate class, over which moral culture and regulated movements exercise a remarkable influence. A great drawback to success is the difficulty of arousing the will to activity. Hence gymnastics are of service in proportion to age, and are more useful when practised in a class, than when carried on alone. Music, or a simple chant, in time with which the movements can be made, helps to fix the attention and to expedite the cure. Of "specific" remedies Dr. West has been able to find none which seemed to him to possess such a character. The whole class of antispasmodics—henbane, belladonna, conium, chloral, bromide of potass—had no other effect than to cause sleep. Tartar emetic in large doses seemed of considerable service in some severe cases with dry skin. Strychnine had not seemed to him to merit the high encomiums Trousseau passed upon it, and its use is not free from danger. The only remedy really useful, and that only in exceptional cases, is the sulphate of zinc, given in increasing doses from 1 to 20 grains. It had effected considerable good in some cases in which other remedies had failed, and in which there was no distinct indication for the use of this or that remedy.

The lecturer then glanced briefly at some forms of pseudo-paralysis in children, especially in association with rickets, and analogous to the loss of mental power after fevers, at the paralysis of the idiotic, and the paralysis due to cerebral tubercle. He concluded with a few words on the subject of "essential" or infantile paralysis, respecting which he drew special attention to the proportion existing between the early exaggeration of sensibility and the subsequent loss of power, and to the comparative rarity of absolute recovery, even in the most favorable cases.

LECTURE III.

In his third lecture Dr. West discussed the subjects of Impairment or Loss of the Power of Speech and the Mental and Moral Peculiarities of Childhood. The date at which children commence talking varies greatly, often without the cause being apparent. First children talk later than those born into a large family, from the want of the instruction and example afforded by the elder children. Girls talk at an earlier age than boys. Tardy acquirement does not always indicate bad intelligence; the pantominic skill may be so cultivated as to render the quick child comparatively independent of speech. It is not easy in early childhood to determine the existence of congenital deafness. Almost unconsciously, nurse and parent accompany words with signs, and the child notices the latter when it cannot hear the former. Deafness isolates the child and retards the mental development; and the question usually to be decided is whether the child is dumb because it cannot hear or because the intellect is deficient. The decision is rendered more difficult by the circumstance that the deafness may not be complete; and either complete or partial deafness usually renders the child wayward, disobedient, and passionate. Except cases of the lowest degree of idiocy, inability to talk is a rare attendant on that condition. Ceaseless chattering is more characteristic than difficulty of speech; the idiot has more words than ideas. The backwardness in speech which often accompanies the general retardation of rickets often causes great uneasiness to parents; but if the condition of the child fairly corresponds to an earlier condition of life—if it grasps with the hands, carries objects to its mouth, notices light and sound, expresses pleasure and pain in a tone variously modulated though not articulated,—we may give assurance that speech will certainly follow.

Stammering is unknown in children before the second dentition, and is exceedingly rare among the children of the poor even at a later age. It comes with the nervousness, self-consciousness, and highly-wrought nervous system of the educated classes. Stammering in speech is nearly allied to chorea in movement, and chorea is usually associated, at some period, with imperfect speech. This is not surprising, since the disordered movements often involve the muscles of deglutition, some of which take part in many of the articulatory movements. But the power of speech is sometimes affected in a degree out of proportion to the severity of the muscular movements, and sometimes the memory of words seems almost gone. In these cases there is much interference with the mental powers.

In the loss of speech and mental weakness after fevers the assurance of recovery may be unhesitating. Dr. West has only known two cases which persisted; in one there was complete loss of the power of hearing, in the other it was part of the shock caused by the fever, which disordered hopelessly some of the mental powers. Several cases have come under notice of temporary loss of speech following on the cure of some apparently trivial ailment, such loss being accompanied by more or less general disorder of the nervous system, the subsidence of the latter preceding somewhat the return of the former. The power is absolutely lost for a time, and returns completely. These cases are of much more frequent occurrence in the child than in the adult. Of true aphasia, as Trousseau describes it, Dr. West has only seen one case, in a girl of five years of age. It accompanied a right hemiplegia, which came on with a fortnight's coma. At first she could only utter "da;" after some months she was able to modulate that monosyllable, and at the end of two years she had acquired a small vocabulary.

The mental and moral peculiarities of the child differ much from those of the adult, and have received far less attention than they deserve. The child lives in the present rather than in the future. His perceptions are more vivid, and his sensibilities more acute, while the world on which he has entered surrounds him with daily novelties; and, lastly, he has less self-consciousness, less self-dependence, lives as a part of the world by which he is surrounded, a real practical pantheist. Hence, to keep the sick child happy, to remove all avoidable causes of alarm, discomfort, and suffering, to modify treatment so as to escape a possible struggle with its waywardness, and to look at death, if coming, from a child's point of view, are duties of the gravest kind.

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ON THE TREATMENT OF GONORRHŒA.

By E. Noble Smith, L.R.C.P., M.R.C.S.,

Late Resident Medical Officer to St. Mary's and the Lock Hospital.

From time to time we see advocated special modes of treatment for gonorrhœa, more especially as regards injections. The truth is, I believe, that most injections have their value, if used with discretion, and in protracted cases in variety. The indiscriminate use of copaiba and cubebs is followed in many cases by unpleasant results. Their employment should be the exception. A strong, healthy man, not over-sensitive, may take these drugs perhaps with benefit; but a strong healthy man is the exception, and the generality of patients will be found to do better upon a treatment the result of which has, in my hands, proved uniformly successful.

The first indication of an attack of gonorrhœa is an itching at the orifice of the urethra, and a peculiar irritation lower down, similar to that caused by ascarides, and which begets an urgent desire to micturate. If necessary, a mild purgative should be administered; but the effect of this is often to produce a subsequent irregularity of the bowels, which is not beneficial, and should therefore, if possible be avoided. A glass of warm milk before rising every morning often has the desired effect. The diet should be regulated, and all food should be of a plain nature. Meat should be fresh, and not preserved; no condiment whatever should be allowed; beer and spirits should be strictly forbidden, and also wine, except claret, which, when diluted with water, may be taken in moderation; coffee and tea should be interdicted, and it must be remembered that, as the patient is not to take any exercise, a diminution in the quantity of food should be observed. Early departure to bed is advisable. The directions as to diet are of the first importance, and, if strictly carried out, will do very much towards the recovery of the patient. A mixture containing conium and mucilage, or equivalent substances, should be given several times daily; and, *when all inflammatory symptoms have disappeared*, injections may be commenced; any simple astringent will very soon effect a cure, without any danger. I prefer the acetate of lead; but if immediate cure does not result, the injection should be changed, the great secret in using injections being to vary them sufficiently; this is more the case in gleet. In old-standing gleet the injection should be changed about every three or four days, and returned to again.

In gonorrhœa, after the discharge has ceased, the injection should be continued for at least a week; less frequently, however—say once, and sometimes twice, a day. Neglect of this precaution is often the cause of gleet. This *system* of practice I believe to be the best. I have said nothing of complications, considering it unnecessary.

March 14th, 1871.

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REPORT OF A CASE OF

CHRONIC OBSTRUCTION OF THE BOWELS, WITH STERCORACEOUS VOMITING, RELIEVED BY THE ADMINISTRATION OF CHLORAL HYDRATE.

By Joseph Lawton, L.R.C.P. Ed., &c.

On the morning of Nov. 12th, 1870, I was summoned to visit the case of M——. On entering the room, I found the patient lying on her back, with her knees drawn up, and her countenance betraying the keenest anxiety. In less than five minutes she vomited, with such force as to plaster the opposite wall, a large quantity of brown stercoraceous matter. On inquiring into the history of the case, I found that the patient had been confined two months previously, but had not enjoyed a free and easy evacuation for some time, her bowels not having been moved for fourteen days prior to my being called in. Her pulse was feeble, wiry, rapid, and indeed all but imperceptible; the tongue was dry and coated with a brown fur, colored by stercoraceous matter; the lips were very dry and black; eyes sunken and glassy; and the system was so emaciated that death within a few hours seemed inevitable.

On making a physical examination of the abdomen, I found the seat of pain to be more particularly in the left iliac region, and could detect increased fulness just above this part. The abdomen was greatly distended by tympanites, the linea semilunares being thrown into folds. The urine was scanty and highly charged with lithates. Up to this time aperient medicines had been administered. I put a stop to all these, and gave her twenty-five grains of the chloral hydrate in half an ounce of cold water. The effect was surprising, this being the first fluid she had been able to retain for many days. I then administered an injection, consisting of a quart of gruel, one ounce of turpentine, and one ounce of castor oil: the patient could feel it moving about the supposed part of obstruction. In half an hour part came away with a few scybala. On the following morning patient had slept; pain had abated; pulse stronger; and she was able to keep down a small quantity of soda-water and brandy. The remaining portion of fluid came away with several large scybala. I continued the enemata twice a day for a fortnight, and had the satisfaction each time of bringing away large quantities of hardened feculent matter. The patient continued to improve, and I consider her now well.

While I regard the turpentine as having aroused the peristaltic action of the bowels, yet I must attribute the cessation of the stercoraceous vomiting to the action of the chloral hydrate.

Torquay, Devonshire, April, 1871.

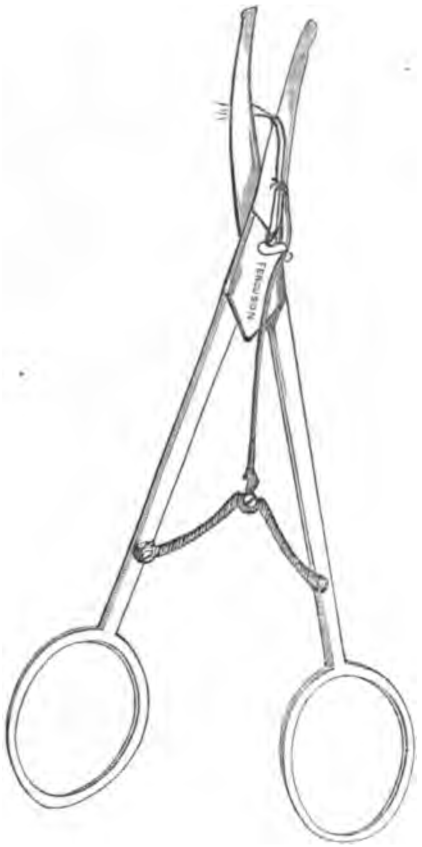
A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—Morgagni *De Sed. et Caus. Morb.*, lib. iv. Prooemium.

ST. BARTHOLOMEW'S HOSPITAL.

AN INSTRUMENT TO FACILITATE SKIN-GRAFTING.

The accompanying woodcut represents an instrument designed to facilitate the process of skin-grafting, which was brought into use at St. Bartholomew's Hospital in the early part of last March. It consists of a pair of curved scissors, which are provided on their concave surface with bent forceps. These are controlled by a lever which descends with the separation of the blades, and rises when they are brought together. The movements of these several parts are so concerted that the forceps meet between, and just below, the blades, immediately before the closure of the latter, and then rise between them to such a height that whatever they have seized will be divided from its attachment when the blades actually meet. Thus the whole process of seizing a small portion of skin, separating, and raising it, can be almost simultaneously performed with one hand. The size of the several pieces of skin is proportionate to the force with which the forceps are pressed against the surface from which it is to be removed.



This contrivance was suggested to Mr. Ferguson, of Giltspur-street, early in the present year, by Mr. Crips, a student of Sr. Bartholomew's. It has since been in constant use at the hospital, and is very favorably spoken of. Mr. Pollock also has, we believe, expressed his approval of it.

TWO CASES OF INTESTINAL OBSTRUCTION TREATED BY COLOTOMY.

(Under the care of Mr. Savory.)

We are indebted for the following cases to Mr. P. Butler Stoney, house-surgeon:—

Case 1.—A. W——, a woman fifty-six years of age, was admitted with constipation of six, and vomiting of five days' standing. She suffered every few minutes from severe griping pains, which were relieved by pressure, and stated that the last motions she had passed had been no thicker than her little finger. She had never been the subject of hernia, and, although both the rectum and the vagina were carefully explored with the finger, no evidence of any such affection could be detected. Her abdomen was somewhat distended. Her vomit was not stercoraceous, and consisted of recently-taken food.

On the seventh day of constipation (the day after admission) five grains of calomel with a grain of opium, and an enema consisting of two ounces of gruel and one of castor oil, were administered. The latter brought away a small shred of mucous membrane, but no trace of fæcal matter was voided, and on the following (eighth) day, though there was less vomiting, the tongue was found to be dry and coated with white fur, and the face drawn and slightly thinner. A drachm of sulphate of magnesia, with ten grains of the carbonate, was ordered to be taken in an ounce of spear-mint water every six hours.

The use of this draught was discontinued on the thirteenth day, when a final dose of half an ounce of castor oil was administered. In the meantime no action of the bowels had been obtained, and the vomiting, with an intermission of twenty-four hours, had continued. Gas had been passed daily per anum, the pulse had remained low, and, with the exception of a rise to 102·2° on the ninth day, the temperature had varied between 98·2° and 99·4°.

On the fifteenth day the pulse was 116, weak and thready; the temperature 98·4°. The tongue was thickly coated and very dry, and the patient complained of abdominal pain, which was increased on pressure.

Mr. Savory then took the opinion of his colleagues as to the advisability of performing colotomy, and the side on which the opening should be made. On the latter point there was some difference of opinion, but, as he suspected that the seat of obstruction was somewhere in the colon itself, he decided to operate on the ascending portion. The opening in the gut gave passage to a large quantity of fæcal matter and gas.

On the following day the patient expressed herself as much relieved, though she had not slept much, and was occasionally sick; her temperature was 100°. On the second day after the operation she complained of a return of the abdominal pain, and at three o'clock in the afternoon very aggravated vomiting came on; an hour and a half later a motion was passed through the natural passage, although large quantities of fæces passed through the artificial opening as well. The patient suffered from abdominal pain and vomiting until she died, at eight o'clock. She had taken about eight ounces of brandy since the operation.

Post-mortem examination.—The body was well nourished, the rigor mortis well marked. There was considerable distension of the abdomen, with well-marked tympanites in the flanks. The abdominal cavity contained limped and flaky puriform lymph; the exposed surfaces of the peritoneum indicated recent acute inflammation. There were no traces of fæcal extravasation. About eight inches above the rectum was found a firm, annular, and apparently malignant stricture of the gut, on either side of which the mucous membrane was considerably thickened and thrown out into fringe-like polypoid projections. Above the stricture, the intestine was much distended with fæcal matter; and, on examination of the small intestine, Peyer's patches were everywhere found to be destroyed, and more or less contracted by old ulceration. Immediately above the ileocæcal valve there were several sharply defined ulcers of about the size of a pin's head. The mucous membrane of the cæcum was much excoriated, and in some places was so thin as to break on the slightest touch. There was some atheroma of the aorta; but all the other organs were healthy.

Case 2.—This patient was a man, fifty-eight years of age, who stated on admission that his bowels had not acted for more than a fortnight, except after taking aperient medicine, when a small quantity of liquid fæces had passed. The finger discovered that the calibre of the rectum was obstructed by a soft mass on one side of which a small aperture could be felt. An average-sized rectum-tube was therefore introduced and made to convey a quantity of water, which brought away a large amount of fæcal matter. This operation was repeated for six days, when, with the consent of his colleagues, Mr. Savory opened the colon in the left loin, in order that a free exit for the contents of the bowel might be established before the patient's health began to suffer. On the following day the patient felt much better; his pulse was 100, his temperature 99·2°; he had had a good night; and the fæces passed freely through the artificial opening. On the third day he suffered from hiccough, and complained of having had a bad night: twenty grains of chloral were ordered for a night draught. On the twenty-sixth day he was discharged in a good condition.

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GUY'S HOSPITAL.

CASES UNDER THE CARE OF MR. BRYANT.

For the following notes we are indebted to Mr. R. S. Mutch.

A Case of Imperforate Anus, with fæcal fistula opening into the vagina.—The subject of this malformation was four months old, and passed small and scanty stools through the vagina; the site of the anus was marked by a slight elevation. All the other members of the family were perfectly developed. A curved instrument, having a button-shaped extremity, was passed through the fistula, and made to pass down the bowel so as to push forward the small elevation just mentioned. Mr. Bryant then carefully dissected down to the bowel, and, having incised it, stiched its cut edges to the margins of the perineal wound. On the evening of the day following the operation a motion was passed through the anal opening. On the fifth day a dose of castor oil was required. The child continued to take the breast well, but was restless at night, She was discharged on the tenth day. Three months later the following note was taken:—"The artificial anus keeps open, being daily dilated by the insertion of a sea-tangle tent. At times, some fæces passes per vaginam, but the bulk comes through the artificial anus."

Dislocation backwards of the Radius and Ulna of two months' standing; complete reduction of the ulna; partial reduction of the radius; increase of the range of movement.—Two months before admission the patient, who was nineteen years of age, was thrown from a carriage, and, alighting on her left hand, dislocated the corresponding forearm. In the course of the same day the limb was "set" by a medical man. At the end of a week, during which there was a great deal of pain, the limb was bent and pulled. This proceeding was repeated every week for six weeks. The patient then placed herself in the hands of two other medical men, who, under chloroform, applied pulleys for an hour or thereabouts. No relief ensuing, she applied for relief at the hospital.

The forearm was found to be fixed at an obtuse angle to the upper arm, and was rather more than semi-prone; the olecranon was displaced backwards and upwards; flexion extension, and rotation could be performed within exceedingly narrow limits; the condyles of the humerus preserved their normal relations, but some thickening could be felt behind the external condyle, and internal to the head of the radius. There was no swelling of the soft parts. Placing his knee against the humerus, Mr. Bryant exerted forcible traction on the forearm; the rupture of adhesions was distinctly audible, but the dislocation could be reduced only to the extent above indicated. The forearm, semi-prone, was fixed at a right angle to the arm by means of an internal angular splint provided with a screw-joint. On the following day the patient vomited, and the joint was swollen, hot, and painful.

On the third day there was scarcely any pain, and the patient walked about the ward. On the sixth day she left the hospital. She was frequently seen after her discharge, and rather more than a month after the performance of Mr. Bryant's operation she had regained complete power of pronation and supination, and a considerable range of flexion and extension.

Compound Fracture of the arm; amputation; torsion of the arteries; primary union; recovery.—John S——, aged ten, was admitted for a complete smash of the left arm, produced by the passage of a wagon over the limb. The arm was amputated about the middle a few hours later, by making lateral skin flaps and a circular section of the muscles. The arteries were twisted in the usual way.

On the third day the dressings were removed, and the wound was found to be all but healed throughout. No constitutional disturbance followed the operation. On the fourth day the boy was up. On the ninth day he fell and injured the stump, but not materially. He left the hospital with a good stump, and perfectly well, in the third week.

PATHOLOGICAL FACTS INDICATIVE OF THE CONVEYANCE OF DISEASE BY DISORDERED NERVES.

(From Demonstrations by Dr. Moxon.)

The following observations afford interesting evidence in favor of the transmission by nerves of irritations capable of producing, at their peripheral extremities, grave morbid changes similar to those which have taken place at their centres of origin. We join with Dr. Moxon in hoping that their publication may incite other pathologists to bring forward any facts bearing upon the subject which they may have met with in the course of their investigations.

In reference to these cases, Dr. Moxon says that the fact of nerve-disturbance exciting certain kinds of nutritive changes is illustrated by common examples of the states called "zoster"; by the not unfrequent occurrence of rheumatoid inflammation in the joints of the lower extremities in subjects of paraplegia; by the changes occurring in the retina in intracranial disease; by ulceration of the duodenum, or even of the stomach (of which he has recently seen a marked instance), in burn cases; and by the power of partial division of the fifth nerve to induce ulceration of the cornea, which has lately been reaffirmed. He thinks also that the circumstances and characters of certain other ulcers of the cornea and of the stomach are but phases of hyperæsthesia, and should be treated as being essentially nervous.

Case 1.—While the body of a boy was under inspection, it was noticed that in either side of the chest there was a remarkable band of old pleuritic thickening. This took the course of the third and fourth dorsal nerves, so exactly on each side in the parietal pleura that Dr. Moxon was induced to examine the spinal cord at the point of origin of these nerves for some explanation of so remarkable an appearance. It was then found that at the parts of the cord which gave rise to the third and fourth dorsal nerves there was an old dilatation of the ventricular cavity. This dilatation would admit a No 4 catheter, and was two inches long. It was closed at its ends, and the medulla around appeared quite healthy. The wall of this hydro-myelocele was a little thickened. There was no other dilatation of the cord's ventricle, nor any other disease of the nervous centres, discoverable. It was scarcely possible to regard this as a mere coincidence. It was no common pleurisy, The peculiarity of its appearance led to the examination of the cord, which otherwise would not have been made. The boy had exhibited no spinal symptoms.

Case 2.—A woman died in the clinical ward of paraplegia. On inspection it was found that a tubercle, of the size of a small marble, occupied and almost destroyed a part of the cord opposite the eleventh and twelfth dorsal intervertebral substance. In the abdomen a remarkable appearance was presented: neither the upper part of the cavity nor the peritoneum of the true pelvis showed any tubercle, but a zone of crowded miliary tubercles extended round the cavity in the peritoneum lining the false pelvis and hypogastrium; there were none on the viscera. The limitation was remarkable, and the relation of these tubercles to that in the corresponding part of the cord could scarcely be a coincidence. It is known to morbid anatomists that tubercles on the peritoneum, though they prefer the parietal to the visceral layer (except in the case of the omentum), adopt the diaphragm as their favorite seat, and, as a rule, are rather generally scattered; but Dr. Moxon did not recollect having ever before seen such a distribution of tubercles as in this case. Their situation corresponded very significantly with the affected portion of the cord.

Case 3.—A woman had painful paraplegia, with headache, aphonia, and paralysis of the left side of the tongue. The post-mortem examination revealed a free scattering of cancer (soft round-cell sarcoma) in the course of the spine, in the bones. A mass of this cancer grew in the basilar bone, and destroyed the eighth and ninth pairs of nerves on the left side. There was no visceral cancer. The cricoid cartilage was in a singular state: the greater part of its left side was in a pulpy condition. This part was rather sharply demarked from the rest of the cartilage. Dr. Moxon made microscopical examinations on several occasions, but could not determine whether the state of the cartilage was or was not *its* sarcoma. There was some proliferation of the cells, but not very much. The intercellular substance was soft and fibrillar, and reduced in amount. But the appearance was different from that of the other cancer growths; and it was hard to say how far the very unusual circumstance of a development of cancer in cartilage determined the difference of minute structure, or whether some other form of altered nutrition had been in operation. Whichever view were true, it was scarcely possible, Dr. Moxon thought, to avoid concluding that the disease at the root of the eighth nerve of the same side had caused the change. The muscles were atrophied, and the nerves wasted.

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ST. GEORGE'S HOSPITAL.

REMOVAL OF A CIRCULAR FILM ADHERENT TO THE PUPILLARY MARGIN.

(By Mr. Brudenell Carter.)

Amongst a number of others, the following operation was performed on the 17th last May on a child who, up to nine years of age, had enjoyed good sight. One eye then became damaged, and the other destroyed, by quick lime. The patient had also since suffered from keratitis and iritis, which had not been treated, and which there was good reason to believe was due to an inherited syphilitic taint. On admission the damaged eye presented a considerable central opacity of the cornea, and an opaque lens, which was found to be covered anteriorly with a layer of inflammatory lymph, which had become adherent to the margin of the iris. In his first operation, Mr. Carter had performed iridectomy downwards, and withdrawn, by mouth-suction, the damaged lens. The film had, however, remained adherent to the margin of the pupil. Its removal was effected by the operation we witnessed, in the following manner:—Two needles, one of which was provided with a cutting edge, were introduced into points of the margin of the cornea opposite to each other in the transverse line, and so manipulated as to divide the circumferential attachment of the film. In withdrawing the cutting needle, the outer of the two openings into the anterior chamber was enlarged sufficiently to permit of the introduction of a delicately-formed canula forceps, by means of which the unbroken circular film, which was of extreme toughness and quite opaque, was readily withdrawn. It was anticipated that by this means useful vision would be restored to the patient's remaining eye.

TWO CASES ILLUSTRATING THE DIAGNOSIS BETWEEN APPARENT AND REAL INTRACRANIAL DISEASE.

(Under the care of Dr. John W. Ogle.)

Case 1.—W. W——, aged twenty-four, had been many years in India, and had had rheumatic fever three times. He had been in the habit of taking a great deal of stimulant. He had been much subject to headache and vertigo, and had had three "fits," preceded by headache. He had also been subject to severe pain at the epigastrium, and very frequently had had vomiting of food. For a month before admission he had vomited everything, he said, except brandy and soda-water. For some days after he came to the hospital he could only walk in a staggering manner, but otherwise there was no detectable alteration in muscular power, and this appeared to arise from giddiness. The sensibility of the skin was everywhere entire. The special senses were intact, excepting that the sight was defective; and he stated that, *though he had never been obliged to wear spectacles, he had been couched in both eyes* many years before. The tongue was very red, and there was excessive constipation but it was soon found that when the bowels were kept open by calomel and enemata, the headache and vomiting to a great degree ceased. The urine was free from albumen and sugar. The pulse and the temperature of the body were natural. Cold lotions applied to the head, with on one occasion a blister and aperients, assisted in removing the headache and the disordered locomotor power. The appetite improved under the use of calumba and mineral acids, and the patient in a few weeks recovered so far as to go out in a comfortable state, free from sickness, headache, or vertigo, which symptoms, though at first assignable to some positive cerebral lesion, appeared to have been merely the result of dyspepsia and constipation.

CASE 2.—The patient, a laborer, aged fifty-eight, had been quite well until ten days before admission, when he lost his sight, he said, and was greatly troubled with vertigo. There had been no injury, no syphilis (according to his statement), no convulsive or paralytic symptoms, and no vomiting. On admission the sight was very defective, and there was great headache and *soreness of the scalp.* The pupils were contracted, the right one more so than the left; both acted sluggishly to light. The urine was found free from albumen and sugar, and the bowels were regular. No loss of power was noticeable in the muscles of the face, palate, or limbs. The voice and the swallowing power were natural. After admission he exhibited a great tendency to drowsiness, but in the course of three or four weeks this symptom, as well as others, have greatly diminished. The pupils are more dilated and natural. Examination by Mr. Carter with the ophthalmoscope showed atrophy of the optic nerve of both eyes, and depression of the surfaces of the optic discs, the result of atrophy. The patient is still in hospital.

The treatment has consisted of calomel-and-jalap purges, counter-irritation to the neck, and, latterly, of bromide and iodide of potassium, the latter being increased. Dr. Ogle suspects syphilitic intracranial deposit, or some other organic change within the skull.

INTENSE, PROBABLY RHEUMATIC, NEURALGIA OF THE ARM; RECOVERY UNDER SEDATIVES AND ALKALIES.

The patient, a laborer, aged thirty-one, had been in the hospital eight years before, with a scalp wound and erysipelas over the left eye. On readmission the pupil of the left eye was much dilated, and the sight defective, probably in consequence of former injury, and he was suffering from intense pain of the right upper arm and shoulder. This, he said, had prevented sleep for several nights. The pain was principally in the right biceps, and was greatly aggravated on the least pressure. It was so excessive that he could hardly endure the pressure of the shirt. Movement of the arm was, however, tolerably free. He said that, five days previous to admission, he had had sharp pain in the left eye and the left shoulder. Dr. Ogle ordered subcutaneous injection of a quarter of a grain of acetate of morphia, and a sixtieth part of a grain of sulphate of atropine; and this, repeated in the evening, had a manifestly good effect, and was followed by much relief. A senna draught was also given. As the pain was still great on the next day, chloroform and belladonna were applied constantly over the painful part; and as the urine was much charged with lithates, and was very acid, bicarbonate and nitrate of potash were ordered every four hours. Owing to the belladonna, the pupils became greatly dilated, and the pain was much mitigated, and on the fourth day the application was discontinued. On the fifth day all pain had ceased, some degree of numbness only being complained of in the arm. Nine days after admission the patient returned to work.

THREE CASES OF CHOREA IN YOUNG GIRLS.

In one case a fright was the ostensible cause; in the other two no cause could be traced. In none did disease of the heart, or any cardiac bruit, or intestinal worms exist. Two of the cases were treated by aperients and steel in increasing doses, good diet, and shower baths; but in both cases the shower baths had to be given up, as the children were afraid of and greatly agitated by them, though in one case the *speech*, which was unusually inarticulate, was *invariably improved* for some time after each bath. This patient has so far recovered as to go to the Convalescent Hospital.

In the second case, in addition to choreic movements of an aggravated nature, the muscles of the limbs and trunk became very notably and unusually wanting in voluntary power, so that the child could not even sit up in bed, or walk in the least, or stand upright; and this extreme weakness went on long after the involuntary movements had almost quite ceased. The child now can walk very well, and has all but entirely recovered, both as regards muscular power and ability to co-ordinate. In addition to other treatment she has lately taken cod oil, and had daily faradisation of the weakened muscles, which she likes much.

In the third case nothing but good diet and aperients have been used, and the child is recovering, though slowly. When brought into the hospital there was an extensive, rosy, bright rash on the body, at first thought to be possibly due to friction, as the movements were very constant and disorderly; but as the eruption was found to be almost universal, suspicion of scarlet fever was raised, which, however, was not verified, as the thermometer showed no increase of temperature. The rash soon subsided. The case is recovering slowly, and Dr. Ogle thinks of having the ether spray applied along the spine.

In all three cases the temperature throughout has remained natural, excepting in one case, where fright from the bath caused it to rise from 99·8° to 101·8°. It had, however, on one or two previous occasions risen to 100°

MISCELLANEOUS CASES.

A case of a woman with *constant vomiting*, of some weeks' standing, which had been treated as the result of ulceration of the stomach. For three weeks there had been no action of the bowels, and much swelling and tenderness of the abdomen existed. Turpentine and other enemata, and croton oil with colocynth, were required; and with returning action of the bowels all symptoms ceased. After the use of the hospital compound calumba powder (consisting of bismuth, calumba, soda, rhubarb, ginger, and cinnamon), and the ammoniated solution of quinine, she left the hospital well.

A case of *hysterical aphonia* recovered under the use of cod oil, strychnia, and wine.

A case of a young woman with slight *enteric fever*, with relapse. In this case the bowels were prone to be *constipated* throughout the attack.

A severe case of *dropped hands* from lead-poisoning, recovering under the use of iodide of potassium and faradisation of the affected muscles.

A case of well-marked *hammer pulse* in a young cabman, with hypertrophy of the heart, and disease of the aortic and mitral valves.

A case of a man said to have had *ague* for two years; the attacks sometimes were daily, at other times with three or four days' interval. The spleen and liver were enlarged. On the morning of admission he had a shivering fit lasting three hours. Dr. Ogle, wishing at first to observe the expected attacks unaffected by quinine, gave the infusion of simaruba, and subsequently steel, with a small amount of quinine; but although the patient remained in hospital three weeks, there was no return of shivering or fever. The day after admission he experienced "coldness" only, and the temperature was 98·2° F., having been 104° the previous evening. On the day after admission it was 98·2° in the morning, and 99° in the evening. The next day it was 100·1° in the morning, and 98·2° in the evening.

A case of a girl with *albuminuria*, in whom attacks of sudden and intense dyspnœa were twice relieved by whiffs of nitrite of amyl being inhaled, and by dry cupping between the shoulders. Some vomiting occurred the day following the second inhalation, but it was doubtful whether it was caused or not by the inhalation.

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HOSPITAL FOR SICK CHILDREN.

CASES OF MALINGERING.

(*Communicated by* Mr. H. T. Butlin, Registrar.)

Cases like the following are liable to be misunderstood, and may for a long time remain wrongly, and therefore unsuccessfully, treated. The moral disease, and the moral treatment which it demands, are overlooked; while all efforts are directed to the cure by drugs of a simulated or enormously exaggerated ailment, to which it becomes the chief object and only habit of the patient's life to call the attention of sympathising spectators by more or less sensational demonstrations. "It is difficult," says Dr. West,* "to assign any sufficient reason for this conduct. Mere indolence seems sometimes to be the chief motive for it; often vanity; the sense of importance in finding everything in the household arranged with exclusive reference to itself appears to have led to it—a feeling which may sometimes be observed to be very powerful even at an exceedingly early age. In many instances a morbid craving for sympathy is mingled with love of importance, and both these sentiments are not unfrequently gratified and exaggerated by the conduct of a foolishly fond mother. Real illness, however, in almost all these cases, exists at the commencement, though the child persists in complaining of its old symptoms long after their cause has disappeared." This description applies very accurately to the following cases. In each instance, Mr. Butlin informs us, the mother was a decidedly "weak woman"; and in each, it will be noticed, there was, or had been, a nucleus, so to speak, of genuine disease. It is obvious that isolation from a foolish mother and indulgent friends must, in all such cases, be one of the most effectual remedial measures.

(Under the care of Dr. Dickinson.)

Case 1.—Sarah J.—— was, on admission, seven years and nine months old. The following history was elicited from her mother:—With the exception of a violent attack of convulsions, which occurred in connexion with whooping-cough at the age of two years and a half, she has been quite healthy until the onset of the present illness fifteen months ago. She was then taken suddenly with sickness, purging, and pain in the bowels, which lasted for about a week. Ever since she has been subject to pain in the bowels. About nine months ago she had another similar attack. The purging lasted for about three weeks; and towards the last she passed nothing but "blood and jelly." A day or two after the return of the diarrhœa, the fits, from which she has ever since suffered, first made their appearance; for about half an hour she was "convulsed," her limbs became rigid, her eyes rolled upwards, she screamed, and frothed at the mouth. From that time a week has not passed without the occurrence of at least one fit, and she has always had convulsive twitchings during sleep. Frequently the attacks have come on three or four minutes after falling asleep; but, in the day-time, they have generally been ushered in by drowsiness and pain in the stomach. They vary in character and duration, lasting sometimes as long as three or four hours. At one time "hysteria," at another "epilepsy," is the more conspicuous feature; she laughs, talks, sings, screams, undergoes violent convulsions, throws herself about so as to bruise herself, and becomes quite unconscious. Nevertheless her general health is good, although she is troubled with a short, hacking cough. She has never been of a particularly excitable temperament.

She was found to be a fairly-nourished child, and very intelligent. She manifested a great interest in her own case, was quite conversant with all her symptoms, and evidently conscious of the interest which her condition excited. Her tongue was clean and dry; her pulse 104, and feeble; her skin cool and soft; her face pale, and slightly bruised in one or two places. Neither heart, lungs, liver, nor spleen afforded the slightest evidence of disease. She complained of no pain, but of tenderness when the lower part of the abdomen was pressed.

Very shortly after admission she had a violent attack; it was ushered in by cries of "Oh, my stomach!" Next she appeared to lose consciousness; then threw herself about the bed, severa times striking her arms and legs. She screamed and ground her teeth. The pupils were sometimes dilated, sometimes contracted. Her face was slightly flushed all over. After the fit she lay as though asleep; after a time she began to cry, and slowly rose up, and the attack was then over.

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* Diseases of Infancy and Childhood, p. 253.

Two similar attacks which threatened to occur in the course of the same afternoon were cut short by a few smacks with a wet towel, and a sharp reprimand from the nurse. At the end of a week, as she had passed her time in playing in the convalescent ward with the other children without evincing any disposition to indulge in more attacks, she was allowed to return home, promising that she would "never do it again."

Case 2.—Rebecca N——, nine and a half years of age, was very healthy and strong until about two years ago, when she became troubled with a hard dry cough, which gradually increased in severity until about four months ago, when, "to prevent her being suffocated, she was ordered inhalation of chloroform." This arrested the cough. During all this time she went to school as usual, except for a few months in the summer. She could read and write well. About last Christmast she "fell into a sort of stupor, refused to take any food," and for a fortnight took only such nourishment as she was occasionally forced to receive from a teaspoon. She kept her eyes constantly closed. Then she became much better, and took an interest in her books, but she would not allow her mother to leave her, and could not be persuaded either to stand or walk. Her father, however, saw her one night get up and walk round the table to fetch something, at a time when she though no one was looking; he, therefore, desired to commence a system of firm moral treatment, but the mother would not hear of it, and prevailed. About five weeks before admission her bowels were constipated for about a week. At the end of that period she again closed her eyes. Since then she had never opened them again, and had only spoken three words. She could not stand, and was subject to "dreadful fits of trembling." Often she wept quietly. She seemed to understand everything that was said. Her appetite was good. She was said to be a remarkably sharp child. Her general health was good; her bowels were regular; the menses had not appeared.

On admission she was found to be a fairly-nourished girl. She had a receding forehead, but her features were strongly marked, and she looked considerably older than she was. Her face was pasty. She lay with both eyes closed, and the left hand held in front of them. The under lip did not cease to quiver. The right hand lay across the chest, but raised up from it, and underwent a continual shaking or vibrating movement. The legs were drawn up, and motionless. When the left hand was removed from before the eyes, the lids quivered, and at times also the sides of the face, the movement being similar to that produced by galvanism. Any attempt to separate the lids were strongly resisted. She did not speak, but frequently nodded in reply to questions. She bore a remarkably hard pinch on the arm or leg without flinching or crying out, but the shaking movements were increased, and the tips of the fingers became covered with perspiration. When one arm was held, the shaking of the other became more marked. The gums were spongy, the lips broken, the breath offensive, the tongue brown and dry; the pulse 116, and regular. She had a short, hysterical cough. The respiratory and heart sounds, and liver and splenic dulness, were normal. The bladder was distended, and on a vessel being produced she passed thirty-two ounces of urine, acid in reaction, of a specific gravity of 1020, and depositing phosphates on being heated. She was ordered two grains of calomel and ten of jalap powder, and passed a good night.

On the following day she cried a good deal. The bowels not having acted, the powder was repeated, and was followed on the third day by copious evacuations. Whenever she awoke from sleep, however suddenly, the eyes remained closed. She was ordered to have a shower-bath every other morning, and a draught consisting of eight grains of chlorate of potassium, a drachm of tincture of valerian, and half an ounce of the infusion, three times a day. An aperient powder was given occasionally in order to maintain the action of the bowels.

Day after day passed without any material alteration in her condition, until, on the fifteenth day, the house-surgeon, Mr. Sankey, taking a galvanic battery to her bedside, told her that it had become absolutely necessary to apply it until she recovered the power of speech. Having promised that as soon as she had distinctly pronounced the word "mother" he would desist, he proceeded to apply the sponges, pausing every few seconds to demand the repetition of the required word. After about a quarter of an hour the girl's patience began to be exhausted, and she broke out into plaintive sobbing. The application was, however, persevered in until, at the end of about half an hour, after two or three feeble articulations, she distinctly pronounced the word. From that time her cure was virtually effected; she resumed the power of speech; and although, on being first placed out of bed, she appeared to be quite unable to stand, in the course of the afternoon she managed to walk about the ward without assistance. Three days later the aid of galvanism was again resorted to to induce her to open her eyes. On the following day she read a book; in two or three days more she was running about the garden with the other children, and she was shortly afterwards discharged in good health.

(Under the care of Mr. Thomas Smith.)

Case 8.—Florence B——, aged eleven years, had been ailing for a twelvemonth, but had previously been a perfectly healthy child. Her first symptoms were difficulty in walking and inability to hold herself upright. Then she began also to complain of pain in the stomach. There was no history of any injury. During the last five or six months she had been gradually getting worse, until she lost the use of her legs. She was not able to hold her water when sitting up. Her bowels were never open without injections. She still complained of pain in the stomach; but had very little pain in the back, except when she was moved. Her appetite was very good, and she was in fair general health.

When brought to the hospital she was fairly nourished, but emitted a peculiar mousy odor, similar to that sometimes observed in the insane. She was obviously very hysterical, calling out as if in pain whenever and wherever touched. She knew a great deal about what had been the matter with her, and remembered what the doctor, at home, said about "her complaint." Her tongue was clean, pulse 100, and face pale. She passed water without difficulty. Her appetite was good, and she slept well, but generally with the legs drawn up. She complained of pain and tenderness in the abdomen. Her legs were fairly nourished, and, on measurement, were found to be of equal size. Her feet were cold. When made to walk she raised her legs slowly and with apparent difficulty. Sensation appeared to be still more impaired than motion, for she took little or no notice when the feet and legs were pinched or pricked. No reflex movements could be excited. A sharp tap on the sole of the foot caused pain in the abdomen, but very little in the back. On examining the back, a very slight lateral curvature to the right side seemed to exist in the lower dorsal and lumber regions, and some tenderness over the fourth and fifth lumbar vertebræ; but no prominence could be observed either in this or any other part of the spine. She preferred to lie on the left side.

Although Mr. Smith suspected that her ailment was hysteria, he thought it safer to commence treatment as if her symptoms were due to a more material cause. He therefore gave directions for the legs to be galvanised daily, and ordered two minims of the liquor strychniæ in two drachms of steel wine to be taken three times a day, as well as a pill containing a third of a grain of extract of aloes, two grains of compound rhubarb pill, and a sixth of a grain of nux vomica, to be taken once a day. In about a fortnight she sat up in bed, having been promised that as soon as she could stand she should walk in the garden. She complained of very little pain either in the abdomen or back; her bowels were regular; and the expression of resignation which her face had worn was replaced by a bright and cheerful look. At the same time she seemed to recover sensation in her legs, and for the first time gave evidence of feeling the galvanic battery. On the twenty-eighth day she began to walk about, and was very bright and talkative. On the thirtieth she walked quite firmly and without any pain; she complained of no pain in the abdomen, and of very little in the back. On the thirty-second day she was running about the garden playing with the other convalescents, and in a few days more was discharged.

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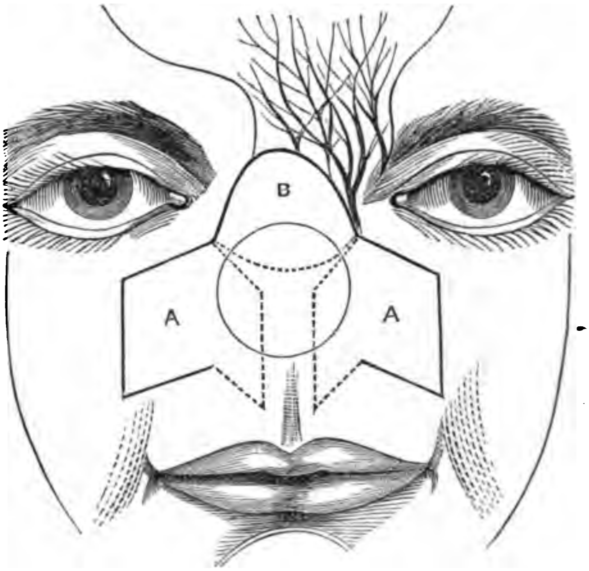
WESTMINSTER HOSPITAL.

CASES UNDER THE CARE OF MR. FRANCIS MASON.

There are several cases of interest now under observation at this hospital. The first is that of a man who presents an example of remarkably rapid recovery after a very severe subcutaneous injury to the knee-joint. While engaged in cleaning a skylight he fell down a well staircase to a distance of nearly 100 ft. In the fall his left knee must have come in contact with the balustrade, for Mr. Mason found the injured leg to be everted to nearly a right angle with the thigh. The internal lateral ligaments must therefore have been extensively ruptured; nevertheless, the skin was uninjured. Strange to say, with the exception of one or two very slight scalp wounds, he sustained no other injury. The limb was readily brought into position, and adjusted to a splint, after which the patient did not have a moment's pain. In about a fortnight he could flex and extend the injured leg almost as freely as the other.

In the adjoining bed is a man on whom Mr. Mason has performed an operation of some novelty for the formation of a new nose. The patient is thirty-one years of age, and, six years ago, had severe ulceration of the palate, which induced necrosis of the bones in this region, and ultimately destroyed the whole of the nose. The operation commenced by making two side flaps from the cheeks, as shown in the diagram at A A. These were dissected up to the margin of the nasal aperture, and, placed with their raw surfaces forwards, assisted materially to form the two alæ. A similar flap was brought down from the nasal bones (B), with its raw surface forwards. A piece of skin was then taken from the forehead. This flap (which for economy of space is not fully represented in the woodcut) differed slightly from that ordinarily recommended, in that, by means of an unusually large pedicle, it was made to include the supra-orbital artery of one side, and also in that it was made more convex over one eye, and rather concave at the opposite edge. The flap, having been gently twisted, was brought down and laid on the raw surface already referred to. The parts were then carefully stiched with silver wire. In devising this operation Mr. Mason's object was to give prominence to the new organ, and to reduce to a minimum the chance of its sloughing, the two flaps from the cheeks being extremely vascular. The space left by these flaps is unobservable, so accurately were the several edges adjusted. The man is progressing very favorably, and the new nose is really an excellent substitute for the original.



The next case is one of varicocele, which was treated in the following manner. Mr. Mason informed us that he had intended to make use of an instrument recently suggested by Mr. Wood, of King's College, but, this not being at hand, an ordinary American wooden letter-clip was used as an impromtu substitute. A loop of thread (wire would do equally well) having been placed subcutaneously round the veins in the usual manner, the ends were passed through two holes previously bored in each extremity of the clip on the spring side. The spring having been firmly compressed with the fingers, the threads were drawn tightly and fastened in a figure of 8 form to a cross-bar at right angles to the clip (in this instance a brass-headed nail was used with the head downwards).

As soon as the fingers were removed the spring came into play and exercised a steady traction on the thread, which made it gradually cut through the veins which it embraced. This simple instrument possesses the additional advantage of enabling the surgeon to increase, if necessary, the amount of pressure on the veins, by pinching from time to time, or gradually compressing with an elastic band, the other extremities of the clip, the part which is intended to grasp papers, &c. The little letter-clip recommends itself by its simplicity, cheapness, and durability, and appears in this instance to have been very effectual. It is Mr. Mason's intention to apply it in other cases in which it is required to adapt a steady force to the gradual cutting through of tissues.

Another case was that of a woman with ununited fracture, in which a new method was adopted for fastening the fractured ends. To this we shall refer on a future occasion.

A fourth case is that of a girl, about twenty years of age, upon whom Mr. Mason had some time ago operated successfully for a cleft through the hard and soft palate. In order to improve the voice, he had recently divided the sides of the soft palate in the manner divised by him, and described in THE LANCET, November Number, 1869. The patient's voice was said to have undergone a decided improvement.

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LONDON HOSPITAL.

DEATH FROM SUPPRESSION OF URINE.

(Under the care of Mr. HUTCHINSON.)

A WOMEN sixty years of age was recently admitted for suppression of urine. She alleged that about a week before the suppression commenced she had had a fall, after which a little blood passed with her urine; but, excepting this, nothing very particular had occurred until, five days before her application, she ceased to pass urine. She asserted that during these five days she had literally passed none. There was no accumulation in her bladder, and, a catheter having been introduced, only a drachm or two of bloody fluid escaped. She looked pale and ill, and stated that she had been ailing ever since the preceding January. She had had much vomiting ever since the stoppage of urine. Her pulse was 66; her temperature 98·4°.

An examination per vaginam disclosed the existence of extensive carcinomatous ulceration of the anterior wall of the vagina and neck of the uterus; the parts were closely united to the bladder. This discovery led to the suggestion that the ureters were possibly occluded in their passage through the walls of the bladder, and that the fall had probably had no real connexion with her symptoms; and it became interesting to watch the progress of the case as an instance of uræmic poisoning from mechanical suppression.

The patient remained in the hospital six days before death occurred, and during this time the most prominent symptom was constant and distressing vomiting. Her pulse had ranged from 66 to 112, seldom being more than 80; her temperature gradually rose to 100°, and she occasionally complained of feeling light-headed. The matters vomited were found by Mr. Stephen M'Kenzie to contain urea. To the last no urine whatever was passed, but whenever the catheter was introduced a drachm or two of blood and mucus were discharged. On the day of her death the following note was made; "She has had an attack of convulsions. Her tongue is dry. During the last twenty-four hours the vomiting has not been so troublesome. She is now conscious, and complains much of thirst and of pain in the back and abdomen. The abdomen is tympanitic in the centre and dull at each side; it is fuller than it was a few days ago. On passing a catheter, we obtain, as before, only a little dark blood. Pulse 112; temperature 100°."

The autopsy showed the fundus of the bladder and the adjacent part of the vagina to be involved in cancerous induration; both ureters passed through it, and were obstructed. Above, the ureters were enormously dilated, being as large as small intestines. The pelves of the kidneys were dilated, and contained a little grumous fluid. The right ureter was double, as was also the gall-bladder, which had two sacs communicating with one duct. The kidneys were large, flabby, congested, and soft.

In reference to this case, Mr. Hutchinson remarked that it was not common to have opportunities for watching the progress of cases in which sudden and complete suppression of urine had set in. Cases of gradually increasing mechanical difficulty in the removal of urine were, he said, not very rare in surgical practice; and in some of these a certain degree of damage to the kidneys not unfrequently resulted. But by surgical means, in almost all these, the obstacle was overcome, and the risk of suppression from occlusion of the excretory channels was staved off. It was well known that suppression is one of the results of such occlusion, and that, as in the present instance, it sometimes sets in very suddenly. Usually in such cases the obstacle is, he said, in the urethra or the neck of the bladder; for, when one ureter is obstructed, it is very rare that its fellow is also involved, so that ultimately one kidney undertakes double duty. He referred to one case in which the patient, who had passed calculi, and suffered from symptoms of stone in the kidney, was at length seized with complete suppression. He came to the conclusion that there existed old-standing destruction of one kidney, and recent obstruction of the other ureter. After four days of suppression, with remarkably mild constitutional symptoms, urine again appeared, and recovery followed. In another case, a commercial traveller, who had lived freely, but who still appeared to be in good health, was suddenly seized with complete suppression. He suffered little or nothing for the first few days beyond being occasionally sick. At length he began to sweat profusely, and his mind wandered. His perspiration and breath smelt of urine. He died on the seventh day of the suppression. No post-mortem was obtained. Mr. Hutchinson added that he had seen several instances in which recovery occurred after two or three days of absolute suppression of urine, without any cause being assignable either for the symptom or its relief.

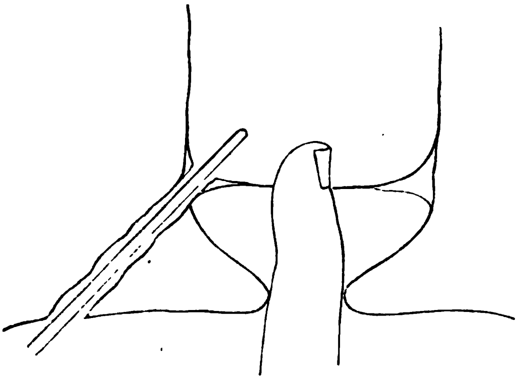
Provincial Hospital Reports.

QUEEN'S HOSPITAL, BIRMINGHAM.

STRICTURE OF RECTUM WITH FISTULA IN ANO; THE STRICTURE AND THE SPHINCTER ANI DIVIDED BY ONE OPERATION.

(Cases under the care of Mr. FURNEAUX JORDAN.)

EMMA C——, twenty-nine years old, a married woman, had suffered from rectal symptoms for twelve years. Examination disclosed an annular simple stricture, with an anal fistula, having two openings externally. Four limited incisions were made, bougies having failed to secure any benefit. Then a director was passed along the fistula, and entered the rectum above the stricture. All the parts between the rectum and the director were divided. The recovery was complete. Large solid stools were passed before she left the hospital.



Remarks.—In referring to this case, Mr. Jordan remarked that most rectal diseases, excluding cancer, could as a rule be cured with certainty. The treatment of simple stricture, however, was often unsatisfactory, and sometimes dangerous. The bougie and limited incisions in careful hands had been occasionally fatal. Very probably the extension of inflammatory action from the rectum to the peritoneum was due to the incessant unrest in the sphincter. Simple stricture mostly lies within an inch and a half of the anus. In such cases he should, in future, after making a few very limited radiating incisions, divide the stricture and the sphincter ani, even if no fistula was present. The advantages would be: complete rest, complete division of the stricture at a point most remote from the peritoneum, and ready escape of all inflammatory products.

A CASE OF RETRO-PHARYNGEAL ABSCESS DUE TO CARIES OF THE TEMPORAL BONE.

Mr. Furneaux Jordan remarked that this case was one of great interest, because the common cause of this abscess was caries of the cervical vertebræ.

Sarah P——, aged thirty-four, had been a patient two years before with purulent discharge from the left ear, tenderness over the left mastoid region, and facial paralysis. She rapidly recovered under the influence of a seton at the back of the neck. She now came with slight facial paralysis, decided impairment of the mental faculties, and a retropharyngeal abscess. There were none of the well-known indications of atlo-axoidean or other vertebral disease. She was again deriving striking benefit from the nuchal seton. How long the improvement would continue could not be foretold. Nature kept the temporal bone at rest; hence, probably, when carious, it often did well.

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LEEDS INFIRMARY.

AMAUROSIS; BREAST-PAIN.

(Under the care of Dr. CLIFFORD ALLBUTT.)

A. B——, a laborer, has been admitted three times during this spring into the Leeds Infirmary with symptoms of the granular kidney or interstitial nephritis. At present (May 12th) his urine is copious, clear, and moderately albuminous; his skin is sallow, harsh, and dry; and his hair, which was originally of a sandy color, has changed of late into a peculiar patchy grizzle. The grizzled patches are chiefly on the frontal and temporal regions. His arteries are not evidently diseased, nor is his heart hypertrophied. He has had albuminuric retinitis, nevertheless, for which he has been an out-patient of the eye department. This was never severe, and has passed off, leaving his sight fair and his retina injured in certain districts only. At present, however, his sight is very defective, so that he is unable to distinguish the features of those about him. This dimness of vision varies a good deal: at one visit he may scarcely be able to distinguish objects at all, or to count fingers; while at the next he may want clear vision of details only. He has some symptoms of uræmia also, such as drowsiness and occasional vomiting. There is a very slight degree of anasarca upon the back of the feet. He, however, complains most of a severe pain which passes through from the epigastrium to the back, between the shoulders; and he expresses great gratitude for the chloral draughts which relieve this pain. It is not always present, but comes and goes; sometimes it sets in suddenly with an almost intolerable constricting pain; at other times it occurs less severely, but is more prolonged.

Dr. Allbutt drew attention to several points of interest presented by this case. In the first place, the patient had not the hypertrophied heart which so often accompanies the latter stages of chronic kidney disease of all kinds, and interstitial nephritis more especially. Secondly, he presented an example of the occurrence of retinitis independently of cardiac hypertrophy, an independence which he (Dr. Allbutt) had had many opportunities of observing, granular kidney being of common occurrence in West Yorkshire. These cases disproved Traube's hypothesis that the retinitis is due to tension of the arterial system in consequence of, or coincidently with, overaction of the heart. Thirdly, the patient presented a second amaurosis quite independent of retinitis, and which might be called "uræmic amaurosis." The disturbance of vision in that form was not accompanied by any evident changes within the eye, but was always accompanied by some other symptoms of uræmia, and probably depended upon intracranial disorder.

Fourthly, the man suffered from a pain which he had called uræmic angina, and which he had noticed in many cases of far-gone interstitial nephritis. He had notes of eight of these cases in which that symptom had occurred. Those patients complained that a pain seized them in the epigastrium, and darted through to the back between the shoulders; the pain was not angina pectoris; there were no sweats, syncope, or sense of dissolution associated with it, nor was it readily arrested by nitrite of amyl; it was simply a severe neuralgia. The earnest desire for relief showed that the pain was by no means inconsiderable; it was so severe in the case of a publican who had died under his care and that of two other medical men a few years ago, that it was finally agreed to inject an eighth of a grain of morphia. With good reason this was done very reluctantly, for the pain was relieved at the expense of a serious increase in the uræmia; in fact, the morphia almost killed the patient.

On two other occasions Dr. Allbutt's aid has been requested in cases of interstitial nephritis, on account of this breast-pain, and on that account alone, so that it was to be regarded, not only as a severe, but as a frequent symptom of the state in question. It was not noticed, however, in any works on the subject, nor was the cause of it easy to determine.

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LIVERPOOL ROYAL INFIRMARY.

CASES UNDER THE CARE OF MR. REGINALD HARRISON.

Chronic Inflammation of the Larynx; impending suffocation; tracheotomy; recovery.—The following case illustrates the advantage of tracheotomy, not only in affording immediate relief to the distress occasioned by impending suffocation, but by placing the inflamed organ in a state of comparative rest, and facilitating the processes of repair which the abnormal activity of the part interrupts.

On his admission, the patient (Henry A——), who was twenty-four years of age, was in a state of considerable distress, arising from difficulty of breathing, which rapidly increased. The symptoms, which had latterly increased considerably, had existed for nearly a year. No distinct history of syphilis could be obtained, though he had two slight frontal nodes. He had never suffered from hæmoptysis, and, beyond some coarse breathing about the apex of the right lung, there were no advanced symptoms of chest complication. He was of a decidedly strumous type. Four years previously his right elbow-joint had been excised by Mr. Bickersteth, with a very good result, the resulting limb being an exceedingly useful one. When admitted, he was so much distressed that he was not able to submit to inspection by the laryngoscope. As several measures, designed to afford relief, had already failed, and as the obstruction to the entrance of air was clearly on the increase, it was determined, after a consultation, that tracheotomy should be performed without delay. The presence of large veins and a very receding trachea rendered the operation more than usually embarrassing. The patient made a good recovery. The tube was kept in for two months. When the patient was seen about a fortnight later the opening in the trachea had completely closed, the breathing was natural, and the voice was almost completely restored. He was advised to continue the use of cod-liver oil, with iodide of potassium and iron.

In reference to this patient, Mr. Harrison says that, in similar cases of chronic character, delay not rarely results in sudden death from œdema and spasm of the glottis, a condition which in all probability might be averted by early operative interference. When the proper aëration of the blood is interfered with, the time for the performance of tracheotomy has arrived, for the patient's blood is not equal to the repair of the diseased part, whilst the slightest accident may be sufficient to cause instantaneous death.

Strangulated Femoral Hernia; herniotomy; opening of the sac, with its subsequent closure by carbolised suture; recovery. Charles W——, aged sixty-six, had suffered from femoral hernia on both sides for several years, but up to fifty hours before admission the protrusions had been readily reducible. He then found himself unable to return the hernia on the right side, and symptoms of obstruction and strangulation, including stercoraceous vomiting, speedily set in. Mr. Harrison operated immediately. The sac had to be opened to admit of the return of a small knuckle of deeply congested intestine. As there was a good deal of general oozing, the opening in the sac was carefully and securely closed with a continuous suture of fine carbolised catgut; the skin was drawn together by ordinary sutures, and the wound was dressed on the antiseptic plan, which is now generally adopted at the infirmary.

The patient suffered from a slight attack of delirium tremens, which was successfully treated with hydrate of chloral, and made a good recovery. He left the infirmary three weeks after the operation.

The careful closing of the opening made in the sac is, the operator thinks, the noteworthy feature of this case, because inflammation of the peritoneum is often, he believes, excited by blood and other fluids making their way back from the wound, and the closure of the sac in the manner described entirely prevents such an occurrence. Mr. Harrison first saw the plan adopted by Mr. Bickersteth some years ago, and he has since had recourse to it with advantage on several occasions.

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Foreign Hospital Reports.

VIENNA HOSPITAL.

NOTES OF CLINICAL REMARKS BY PROFESSOR SKODA.

Typhoid Fever.—Professor Skoda remarked that papules, wheals (*quaddeln*), erythematous patches (*flecke*), and vesicles may all occur on the skin in typhoid. Urticaria often occurs in those who have had it before, especially if the skin be not kept clean. Those who are liable to swelled skin follicles in health will also get them if attacked by exanthemata, especially typhus (typhoid). In abdominal typhus the whole skin is sometimes flecked over with red patches.

The diagnosis of exanthematic typhus is only possible by knowing that we have to do with an epidemic of it. In Vienna it occurs so seldom that you must give a diagnosis of it with extreme caution. An epidemic occurred when Vienna was occupied by the French in 1809, and at that time the General Hospital was overcrowded with patients. An epidemic also occurred thirty years ago in the Theresianum Hospital, and all the students caught it.

The diagnosis of the abdominal from the exanthematic form of typhus is made, in a considerable degree, from the character of eruption on the skin. The amount of eruption in exanthematic typhus bears no fixed ratio to its power of infection; and the prognosis varies in different epidemics of this disease, as in those of small-pox, scarlet fever. &c.

In typhoid, cases of considerable ulceration of the small intestines may occur without any diarrhœa. Meteorismus also, though a very common symptom, is often absent, and is by no means peculiar to typhoid, if present. It may occur in typhus (exanthematicus) where alterations in the intestine do not occur; and here it must be due to a paralysis of the nerves supplying the muscular coat of the bowel through the influence of the fever on the spinal cord and general nervous system. Meteorismus is also common in peritonitis, while it occurs more seldom in intestinal catarrh, which must be very severe to produce it. It seems to be proportioned to the rapidity of the fever, and it may become very dangerous through the impediment which the distended bowel offers to the descent of the diaphragm, and therefore to respiration, so that hypostatic congestion of the lungs and catarrhal swelling of the bronchi result.

Diagnosis of recent Endocarditis.—With regard to a case of second attack of acute rheumatism, with a systolic murmur at the apex of the heart, Dr. Skoda said that, though the mitral insufficience here present was a proof that endocarditis *had* existed, the question one should always consider, if a patient come under observation with an intracardial murmur and rheumatism side by side, is: "Is this murmur due to old or to recent endocarditis?" Where the history fails to help us, we may be aided by remembering the following points:—In a recent endocarditis the spleen will probably be plugged (infarcted) with fibrous deposit from the valves, and therefore *enlarged.* Similar infarction of the kidneys will give rise to the presence of blood in the urine. Pains in the cardiac region, and irregularity and palpitation of the heart, if they exist, point to a recent endocarditis; but they depend more on the fever present than on the endocarditis *per se.* The most certain proof of fresh endocarditis is a gradual increase of dilatation of the heart during the course of the rheumatic attack, especially if followed by palpitations and dyspnœa.

Embolism and Encephalitis.—With regard to a case of right hemiplegia in a woman aged twenty-five, with insufficience of the mitral valve, Professor Skoda observed that, though the paralysis was here probably due to embolism, we must also think of encephalitis circumscripta as its possible cause. Encephalitis is sometimes so ill-marked that the patient, at the beginning, has merely a headache, and nothing besides. Then follows paralysis or sopor. The symptoms may be exactly the same as those of embolism of a cerebral artery. In this instance the patient suddenly fell down, without having had any illness beforehand. Dr. Skoda said he could make no certain diagnosis between embolism and encephalitis circumscripta during life. Granting that the case before him was due to embolism, it was possible for it to have occurred during merely a slight cold, or slight rheumatic attack. The pulse was here quick, and the temperature raised—i. e., there was fever present. Such fever can follow an embolism through inflammation excited in parts of the brain bordering on the infarction, but it is not directly dependent on the embolism.

The prognosis of embolism is better than that of encephalitis, for, after the former, the paralysis of the extremities may disappear from the plugged artery becoming again free. Embolisms of the lower arteries of the body—e. g., the crural on the right side—not seldom occur in patients with heart disease, and are followed by pulselessness of the vessels of the leg lower down; and, after this state has lasted for months, the pulse returns, showing that the artery is pervious again. The same thing can happen in the brain. In encephalitis no such recovery can take place. The part of the brain injured will always preserve its damaged condition, and the paralysis undergoes no diminution.

The treatment for both affections is but ill-determined. Digitalis may be given if the pulse is excessively rapid, but neither the embolism nor encephalitis would be thereby diminished. Cold applications to the head may be used if the temperature is high, else they are better avoided. The so-called revulsive agents, such as mustard baths and preparations of cantharides, are useless, and should not therefore be employed. The most important indications are to remove fæces from the rectum and to look after the bladder. The nutrition of the patient should be carefully attended to, and he should be told that his illness will probably last a long time.

Medical Societies.

AUGUST—SEPTEMBER.

PATHOLOGICAL SOCIETY OF LONDON.

MR. J. HILTON, F.R.S., President, in the Chair.

MR. FREDERICK CHURCHILL showed two specimens of the nature of Mole Transformations, both limited to the cutis, and not connected with similar growths on other parts of the body. The first specimen was from the lumbar region of a woman aged forty-five. The growth dated from childhood, but did not change till after an injury in July last, when it rapidly increased. It was removed in February, and it has not returned. The second specimen was removed by Mr. Sidney Jones from the lumbar region of a young woman aged seventeen. It had existed from birth. The area of the growth was six inches by two and a half. She had not noticed anything unusual about it until three weeks before her admission, when a thick dark-brown crust peeled off, and exposed a wart-like papillated growth below.

Mr. Francis Mason referred to the instance of a like condition which he had brought before the Society on a recent occasion.

Mr. Churchill pointed out that whereas in Mr. Mason's case the growth originated in a wart, in his own case it was connected with a mole.

Dr. Whipham exhibited a Tumour removed from the liver, which appeared under microscopical examination to be composed of elements similar to those seen in epithelial cancer. It was a primary growth apparently. The ovaries were diseased, but there was no cancerous structure to be detected in them.

Mr. Arnott doubted the disease being epithelioma, and it was referred to the Committee on Morbid Growths.

Mr. Hulke brought forward a large Medullary Tumour of the Belly, with a similar Tumour of the Orbit of doubtful duration, taken from the body of a child two and a half years of age. The child suddenly died. There was found after death also a white mass in the lung, which could be enucleated, and the mediastinal and abdominal glands were enlarged. There were numerous extravasations of blood into the tumours, and into various parts of the body. The tumours were histologically seen to be composed chiefly of cells like white blood-corpuscles. Perhaps it was a glioma, arising from the semilunar ganglion.

Dr. Hare remarked that cancer in children was often of many years' duration.

Mr. Hulke, in answer to Mr. John Croft, said that there were present the slight elevations of the temperature of pyæmia; and replied to Mr. Fairlie Clarke that the cause of death was brobably due to hæmorrhage into the cavities. Referred to the Committee.

Mr. Frederick Churchill showed a specimen illustrating the effects of the ether spray on the skin in Addison's disease in connexion with the question of the nature of bronzed skin, which had been raised at a previous meeting. Pathologists, averring that the sympathetic nervous system exercises control not only over the bloodvessels, but the functions of the supra-renal capsules, and that the latter in their medullary part are concerned with nervous phenomena, whilst their cortical part has to do with the elaboration of blood plasma, have ascribed disease of the capsules with bronzing of the skin as due to a disorder of the sympathetic system. If, argued Mr. Churchill, the function of the cortical portion of the gland be as affirmed, it is reasonable to suppose that the excessive activity of these blood-glands would tend to the deposition of pigment when the capillary circulation was embarrassed by imperfect or irregular action of the vaso-motor nerves. The object of Mr. Churchill's experiment was to ascertain how far the variation in tint, observed in the present case of Addison's disease, was due to partial stasis of blood in the venous capillaries. He selected a deeply-tinted part of the skin and played a jet of ether upon it; it was at once blanched, the partially detached scales being raised as flocculi. With the return of the circulation in the part, the bronzed condition also reappeared. A similar result could, however, not be obtained elsewhere. The skin of a negro was not blanched, only paled. The patient, after an absence of two months, returned to the hospital in a dying state. The part of the skin which had been frozen had desquamated, including the pigmentary layer, exposing a patch of blanched skin, which appeared to retain all the normal elements save the pigment.

In answer to Dr. Greenhow, Mr. Churchill said there had been no actual loss of substance; and no cicatrix had formed.

Dr. Murchison suggested that the cold might have paralysed the nerves of the part, and so prevented the deposit of pigment.

Dr. Murchison brought forward a specimen of Typhoid Ulceration of the Intestine from the body of a man who had died suddenly from fatal hæmorrhage into the intestine on the twenty-seventh day of the disease, and in whom there had been constipation. He brought forward the case—not a very unusual one—to disprove the common notion that continued fever with constipation is typhus, and with diarrhœa, typhoid fever. The case presented numerous other interesting clinical features.

Dr. Douglas Powell observed that the remarks of Dr. Murchison applied in many cases to ulceration of the intestines in phthisis, even when the ulcers are old.

Dr. Murchison also exhibited a specimen showing Perforation of the Appendix Vermiformis consequent on an accumulation of vegetable and fæcal matter, taken from the body of a girl who died six days after symptoms of acute peritonitis commenced. There was no injury or other causes to account for the symptoms. It had been shown by Dr. Crisp that this occurrence was much more common in males than in females.

Dr. Crisp said that he thought it to be due to the fact that boys use the right leg, as in football, more than girls.

Mr. Arnott exhibited a specimen of Soft Cancer of the Breast. The patient, from whom the breast had been removed by Mr. Nunn in the Middlesex Hospital, had noticed the tumour for ten months, and latterly it had been growing rapidly. The whole of the breast was occupied by a large smoothly lobulated tumour, with a fluctuating prominence in the centre. The skin was œdematous, the nipple slightly retracted, and there was a moderately enlarged gland in the axilla. But as, in addition to these characters, there was hardly any pain, and as the woman's health remained perfectly unimpaired, it was thought by nearly all to be cystic sarcoma, rather than true cancer. Even after the removal of the mass, this impression was at first confirmed by the naked-eye appearances. A subsequent microscopic examination, however, convinced Mr. Arnott that it was really an example of so-called "firm medullary cancer." Such parts of the tumour as were not spoiled by degenerative changes and blood extravasation were made up of closely crowded, large, irregular cells of varied shape, containing one or more large oval nuclei with bright nucleoli. These cells were contained in the wide meshes of a fine fibroid stroma which pervaded the mass and mapped it out into irregular loculi—as shown in a drawing sent round with the specimen. Apart from the interest attaching to the diagnostic difficulties of the case, Mr. Arnott was anxious to draw attention to the fact that it was one of those examples of cancer which, occupying a mid-position between scirrhus and medullary, serve to prove the real identity of these two forms of the disease. He thought English pathologists generally laid too great stress upon the distinctive characters of these varieties, even where they were careful to separate the medullary sarcomata from the latter class. Seeing that occasionally, in the hardest scirrhous cancers, nodules of very soft structure were met with, and that the secondary growths of both scirrhus and medul lary were apparently quite identical, it seemed more fit that, in using the terms scirrhus and medullary, nothing more should be understood than a difference in consistence, the only real distinction between the histological structure of the two tumours consisting in the proportion of fibrous stroma present. This was in the hardest cancers abundant, and was proportionately less as the firmness of the tumour, diminished, this distinction being probably mainly dependent upon rapidity of growth.

Dr. Murchison showed a specimen of Acute Atrophy of the Liver, in association with gall-stones, taken from a case of great clinical interest. The patient was a man aged sixty-six, admitted into hospital last October, and who died in a month afterwards. On admission, the man was jaundiced, caused by the passage of a gall-stone, as was evidenced by the antecedent symptoms. In a few days the man became drowsy, and fell into a typhoid state, his tongue being brown and dry, and his mind wandering. Then succeeded acute delirium and hiccough, his jaundice lessened, and bile passed per anum. The question was as to the diagnosis between cerebral mischief, pyæmia, and acute atrophy. The urine was found to contain tyrosine, and the quantity increased, whilst the patient became worse, and died of convulsions. At first the temperature increased, but it was normal, or rather below the normal standard, some days before he died. Dr. Murchison leaned, in consequence of the state of the urine and the temperature, in his diagnosis towards acute atrophy. At the post-mortem the bile-ducts were dilated, and the orifice into the duodenum enlarged, whilst the gall-bladder contained stones. The liver was in an early stage of acute atrophy, and there were small pyæmic deposits in the lungs and liver.

Dr. Crisp exhibited an Aneurism of the Coronary Artery taken from the body of a man aged sixty-three, who lost an enormous quantity of blood in two or three days, and who died suddenly, nothing during life in the way of physical signs pointing to the existence of the aneurism. The opening whence the blood came was not detected. The pericardium was full of blood; the arteries were atheromatous. The man ascribed the origin of his disease to a blow received twenty years before.

Mr. Sydney Jones asked if there were any communication between the coronary artery of the stomach and the latter organ, because that was often overlooked.

Dr. Crisp replied that the mucous surface of the organ was intact; and, in reply to Dr. Douglass Powell, said that when excited there was cardiac distress, and the pulse was weak; and in reply to Dr. Wiltshire, that the liver was healthy.

Mr. T. Smith exhibited a specimen of Cystic Disease of the Breast with an old Cancer, which had in part undergone calcareous degeneration, removed from a patient belonging to a very cancerous family. The cyst sprang from the side of the cancer.

In reply to Mr. Hulke, Mr. Smith said that the glands near were not enlarged, and that under the microscope the typical characters of cancer were observable in the growth.

Mr. Sydney Jones, remarking on the non-enlargement of the glands, said he should be glad if the tumour were referred to the Committee on Morbid Growths, and this was done.

Mr. Morris exhibited a specimen of Medullary Sarcoma of the Tibia, removed from a boy under Mr. De Morgan's care. The growth had been growing for about three months; it was accompanied by pain, and was the size of an orange. On section it looked like medullary cancer. It was, however, of periosteal origin, surrounded the shaft of the tibia, but was separated from the epiphysis by the cartilage, and was made up of soft brain-like material, yielding a milky juice, and exhibiting under the microscope small round cells with granular contents, a few having nuclei, there being also some fine fibrillæ, but no true cancer cells.

Dr. Payne said he hoped the growth would be referred to the Committee, because this sarcoma-like cancer is histologically interesting and of obscure growth, and in the present case presented one feature of special interest—the absence of nuclei.

Mr. Morris also exhibited a Venous Tumour of the Brain from a man aged thirty-eight, admitted under Dr. Goodfellow's care at the Middlesex Hospital. At fourteen years of age he had been knocked down, and was subsequently epileptic for thirteen years, a fit coming on every four or five weeks. He had been lately a hard drinker, and was sexually incapacitated. On the 2nd of April he was as well as usual, then drank hard, and had a fit, during which time his eyes protruded greatly; the fits recurred and he became unconscious. On the 5th of April he was at work, and was there seized with delirium, became unconscious, and died in twenty-four hours. At the post-mortem the arachnoid was found to be congested and its veins varicose. In the right hemisphere was a vascular mass made up of a congeries of varicose veins and attached to it was a large cyst surrounded by softened brain, but microscopically unchanged. The contents of the cyst were altered blood, and the cyst communicated, it seemed, with the veins.

Dr. Murchison showed a specimen of Diphtheritic Inflammation of the Larynx. Against the diagnosis of diphtheria during life were the facts that the man had symptoms for a month and there was no albumen in the urine. The symptoms present were croupal cough and laryngeal obstruction, subsequently diphtheritic membrane was expectorated, and the urine became suddenly albuminous. Tracheotomy failed to save the patient. The larynx was lined by diphtheritic membrane, having, as first pointed out in the Pathological Society, a cellular structure.

Dr. Murchison gave an account of the post-mortem appearances observed in a case of Paralysis Agitans. The patient on whom the observations were made was a male seventy-one years of age, who had died of typhus after suffering from paralysis agitans for twenty years, the tremor having of late been constant. Dr. Cayley had made an examination of the spinal cord, and had detected a great increase in the connective tissue outside the cord, which passed inwards at certain points. The cerebral canal was obliterated by a thick mass of rounded cells and granules, and there appeared to be here and there patches of exudation-matter. The brain was atrophied with effusion of serum—a common occurrence in typhus, however.

Dr. Murchison exhibited the Kidney of a lad of eighteen, who died from uræmia in the Middlesex Hospital. The symptoms dated ten days before his admission to hospital. They were pain in the back, subsequently drowsiness, dry brown tongue, not a rapid pulse, and no alteration of temperature, nor dropsy, his urine being 1007 specific gravity, and only slightly albuminous. The boy sank, and died of convulsions and coma. The kidneys weighed respectively 1¼ oz. and ¾ oz. The structure was that of the granular kidney, but the organs were very lobular.

Mr. Wyatt showed a specimen of Perforating Ulcer of the Stomach opening into an artery, an Amputated Penis from a case of self-mutilation, and various specimens of Gunshot injury brought from Paris, illustrating the inadvisability of excising joints when injured by bullets, and also the frequent injury of the sciatic and other nerves in connexion with the occurrence of acute purulent œdema.

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MEDICAL SOCIETY OF LONDON.

Dr. Andrew Clark, President, in the Chair.

Dr. Douglas Powell related some cases, and exhibited two hearts, illustrating what he regarded as two recognisable varieties of Obstructive Mitral Disease. The physical signs in one were, an irregular intermittent pulse, increased cardiac dulness, a systolic apex murmur with no distinct presystolic bruit, and a slight diastolic murmur to the left of the ensiform cartilage. The patient died suddenly shortly after taking a substantial breakfast. On post-mortem examination, the right cavities were found distended, the left ventricle was contracted, the mitral valve stretching across the mitral orifice as a rigid diaphragm, slightly convex towards the ventricle, and perforated by a slit like a button-hole opening. The second case showed the two flaps of the mitral valve fused together at their margin so as to form a funnel projecting into the ventricle, and communicating with it by a small opening. There was great hypertrophy, dilatation, and hardening of the right ventricle and left auricle, the left ventricle being of natural dimensions. The physical signs had been, regular pulse, prolonged presystolic murmur at apex, not followed by any systolic bruit. The patient had died of cerebral embolism. Dr. Powell next alluded to a case in the Brompton Hospital, under the care of Dr. Cotton. After referring to the other illustrative cases in attendance for examination in the adjoining room, Dr. Powell remarked that, as regards the prognosis, he would consider the more common form of obstructive mitral disease as necessarily more speedily fatal than the funnel variety, since they were usually complicated by regurgitation, which greatly increased the pulmonary congestion. It neutralised the increased power of the right ventricle. The tendency to sudden death from engorgement and consequent paralysis of the right ventricle was great. In the funnel variety a more favorable prognosis as to the duration of life could be given. The author regarded these cases as of congenital origin, and the thickening of the valve, sometimes (not always) present, as the result of long-continued mechanical strain. The comparatively sudden development of symptoms might be explained by the fact that the equilibrium of the circulation was maintained so long as the right ventricle continued to act with full vigor. Referring to the question of treatment, Dr. Powell looked upon quietude, both mental and bodily, as of the first importance. An appropriate modification in diet, and the amount of stimulants taken, was particularly important as a precautionary measure in those who suddenly desisted from active life.

Mr. Maunder made some remarks "On the capability of *always* securing good use of the Triceps Muscle after Excision of the Elbow-joint." He advocated the preservation uncut of those fibres of the triceps tendon which, passing forwards between the point of the olecranon and the external condyle, are continuous with the fascia of the forearm. An upper extremity was shown on which he had by a longitudinal incision excised the elbow after his own method, preserving a stout band uniting the arm and forearm, and consisting of triceps muscle and tendon, anconeus muscle, and deep fascia of the forearm. Out of four patients exhibited, two had been submitted to excision for compound comminuted fracture, and two for strumous disease. Three of these patients possessed to an unusual degree the power of active extension by the triceps muscle. The fourth, which had been operated upon in the usual way, did possess this power, and was shown by way of contrast. All four possessed most serviceable limbs, and showed the great use of excision of the elbow-joint.

Mr. W. Adams read a paper on the "Selection of Cases for the Operation of Subcutaneous Division of the Neck of the Thigh-bone." After observing that this operation, which he first proposed, had now been successfully performed five times, and only once (in fibrous anchylosis in a child) with an unfavorable result, the author stated that bony anchylosis is the result of several morbid conditions, differing as to the destructive or non-destructive character, as affecting the bones. After discussing the question in great detail, he gave the following as the conclusions to which he had arrived:—1. That in rheumatic anchylosis no destruction of bone ever exists. 2. In anchylosis after pyæmic inflammation destruction of bone rarely exists, the soft structures only being destroyed. 3. In anchylosis after traumatic inflammation, in healthy adults, no destruction of bone occurs as a general rule, even after acute suppurative inflammation, the soft structures only being destroyed. 4. In anchylosis after strumous disease of the joint, when arrested in the early stage, only superficial caries of the head of the bone occurs, and the operation can generally be performed. 5. In anchylosis following the more severe forms of strumous disease, in which there has been evidence of caries and necrosis of bone, destruction of the head and neck of the thigh-bone may be diagnosed, and in these cases the operation cannot be performed. Thus it will be seen it is only in the fifth class of cases that the operation is decidedly negatived.

Mr. Brudenell Carter showed a new Reflecting Ophthalmoscope for purposes of demonstration, arranged by Dr. Burke, of Paris. It consisted of two concave mirrors fixed on stands, and afforded an image of the fundus oculi four inches in diameter and brilliantly illuminated. He also exhibited to the Fellows, by its means, the eye of a patient suffering from syphilitic neuro-retinitis.

Editorial.

APHASIA.

An article on Aphasia, which lately appeared in our contemporary the *Spectator*, illustrates very well the kind of assistance which intelligent laymen could render to our profession in the investigation of questions that lie in the territory where psychology and pathology come into closest relations. The paper in question was written *apropos* of Dr. Bateman's interesting work on Aphasia.

We have so repeatedly reviewed the evidence concerning this very curious disease that we need hardly recall the principal features of the controversy that has arisen respecting the nature of the affection. Suffice it to say that the point of central interest, throughout, has been the question whether or not we have, in the phenomenon of aphasia, a veritable example of the localisation of a distinct faculty, or group of faculties, in a definite portion of the brain. The affirmative of this proposition was favored by the remarkable frequency with which right hemiplegia is associated with aphasia, and the still more remarkable limitation of lesion discoverable after death, in a considerable number of these cases, to a small portion of brain-tissue—namely, the third left frontal convolution. We have already shown, however, that this apparent pathological connexion is invalidated by such numerous and formidable exceptions that it is no longer possible to suppose that in the third left frontal convolution we have discovered a true speech-organ. Towards this conclusion the elaborate analysis by Dr. Bateman rendered important service; and the comments which his work has elicited from the writer in the *Spectator* form a valuble supplement to the arguments previously urged, inasmuch as they review, with greater care than had previously been used, the processes of thought which are involved in the correct application of language to its objects.

As the writer of the review very sensibly observes, there is nothing in the facts of the simpler forms of aphasia that differs at all essentially from those of *chorea*. A greater paradox is offered by those cases in which particular classes of ideas and particular groups of words have become impossible for the patient to put into articulate language. The writer of the review selects three kinds of examples: the first, in which a particular piece of knowledge—the Greek language—has altogether been lost to the patient's mind in consequence of an injury to the brain; the second, in which the patient has lost the power of putting into articulate language any noun substantive, though the idea represented by it remains in his mind; the third, in which the power of expressing nouns substantive is partially lost, in so far that the patient can always recall the initial letter of the word, but not the rest of it. The last kind of cases is, as he justly observes, fatal to the idea that the power of expressing particular ideas is located in particular portions of the brain, for it would be extravagantly absurd to suppose that a distinct spot in the brain would need to be injured, not only for every part of speech in every separate tongue, but for every separate letter in those parts of speech. He suggests that lesions of the brain tend to deprive us *first* of our command of those acquisitions of knowledge which have been attained with most conscious labor, and to leave comparatively untouched those which the mind has attained in a more mechanical and passive manner. He quotes as an illustration the facts observed by Dr. Hughlings Jackson, as to the preservation by aphasics of their command of ejaculations and oaths; and he applies the same principle of explanation to the case in which the power of articulating nouns substantive is lost. The noun, he thinks, is especially difficult to remember, because it would form the *predicate* of such sentences as the aphasic would usually be tested upon; it would thus form the point on which the patient's attention would be most consciously directed, and he would be specially liable to break down in the effort to put it into articulate speech. The writer accounts for such a curious phenomenon as the retention of the knowledge of the initial letter only, on the hypothesis (very natural and sound, we think) that the look of the words had associated itself in the mind without any sort of effort of attention, and was thus recalled with the sort of spontaneous ease with which oaths and ejaculations rise to the tongue of a man who may be utterly unable to articulate any other kind of words. The general conclusion at which the writer arrives is, that in aphasia it is not the part of the brain affected which determines the particular loss of naming power, but the history of the individual intellect, and that that side of the memory is soonest affected which has owed much to laborious and conscious effort. And he remarks, incidentally, that at least the phenomena of aphasia prove, what has often been denied, that clear thought is possible without names.

There is a great deal of matter for interesting reflection in these suggestive remarks of our contemporary: and we are glad to welcome the signs of an inclination on the part of non-medical psychologists to study with attention the facts revealed by pathology. At the same time we cannot but remark a certain tendency on the part of the writer to get a little confused between the cases of loss of memory for ideas, and loss of the power of articulating words the ideas corresponding to which are perfectly retained in the mind. Probably the writer of the review has the distinction clearly enough in his own mind; but it is likely that he has hardly made it plain to his lay readers. Indeed, an amusing proof of this is afforded by a letter from a correspondent, in a subsequent number of the *Spectator*, who relates his own case as if it were one of aphasia, when in fact it was simply an example of loss of memory for *recent events*, in consequence of an injury, but without one of the phenomena, so far as his account shows us, of true aphasia. And we must certainly demur very decidedly to the propriety of adopting, as a general specific for the kind of condition in which this gentleman found himself, the remedy which he says cured him—viz., hard walking exercise. Probably he is a man of naturally robust constitution, and of a certain original toughness of brain-fibre; but we suspect that it would be a perilous experiment for more delicately constituted patients to attempt to hasten their recovery from a partial hemispheric paralysis, produced by injury, by any such violent means; and we should think that even this patient's medical attendant must have watched with some anxiety his strenuous exertions to recover his lost powers!

ACTION OF CHLORAL ON THE BLOOD.

The effects of various substances on the blood, either when introduced into the stomach or more directly into the vessels themselves, afford a field of research that has hitherto not been very extensively cultivated, yet is one which, if carefully worked over bids fair to yield interesting and valuable results in enabling some explanation to be given of the action of certain remedies both in health and disease. In the best and most recent works on materia medica we obtain but little more information than that certain metallic salts either directly or indirectly improve the quality of the blood, whilst others appear to deteriorate it; that mercury, for example, effects the destruction, whilst iron promotes the formation, of the red corpuscles. But we have few, if any, accounts of the changes occurring in the blood-corpuscles, in the living body, observable with the microscope after the administration of various substances, though the action of them out of the body is in some instances well known.

A paper has lately been read before the Medical Society of Victoria, by Mr. T. S. Ralph, in which, besides supplying recent information on this subject, he refers to former investigations of his own which we do not remember to have seen noticed, but which were read before the same Society five years ago: the title of the paper being "Observations and Experiments with the Microscope on the Effects of Prussic Acid on the Animal Economy." In this Mr. Ralph pointed out the specific or chemical action of that agent on the blood—viz., that the iron was laid hold of by the cyanogen, and the result was the formation of prussian blue, or some cyanic compound of iron. Accompanying this remarkable change was another, to which he also drew attention, that certain oval bodies, closely resembling starch grains, were formed; these bodies turning blue under the action of iodine, and polarising, were seen to form in the field of the microscope. In another series of experiments, in which ammonio-sulphate of copper was employed out of the body, Mr. Ralph showed that this salt prevents the egress of the solid portions of the red corpuscles, whilst at the same time it offers no obstacle to the entrance of magenta, which can pass in and color them effectually. His present paper deals with the action of chloral on the blood in the living body. He holds with Liebreich that this substance, in its passage through the circulation, is decomposed by the alkaline salts of the blood into chloroform and ether formyl or a formiate of some alkali; and he believes the action of the former to be considerably modified by the latter. He finds that hydrate of chloral, administered by the stomach or subcutaneously injected, gives rise to the production of bright-red or dark-red particles, masses, or globules in the blood. Starch bodies are likewise met with accompanying these changes. The urine also exhibits these bodies. Formic acid added to fresh blood also causes the production of dark-red globules and particles. Other experiments showed that similar effects were produced by lactic and prussic acids conjoined; and that variations occurred in the reactions of the corpuscles with different substances in correspondence with the alterations of the blood consequent on differences of food and drink. Mr. Ralph, therefore, concludes that just as we now test the condition of the urine in order to ascertain what is being eliminated from the body of a patient, so hereafter will the physician find it useful occasionally to test, by means of reagents, the condition of the blood of his patient in order to verify the character of some obscure symptoms.

Medical Annotations.

"Ne quid nimis."

THE STRUCTURE AND DEVELOPMENT OF THE SKULL OF THE COMMON FOWL.

An extremely important and original paper, entitled as above, by William Kitchen Parker, F.R.S., has recently been read before the Royal Society, and is now published in the Philosophical Transactions. Mr. Parker's previous researches on the Tinamous, the Skull of the Ostrich, and upon the Shoulder-girdle are already well known; but we venture to predict that the present paper, or rather series of papers, for we understand that Mr. Parker is now engaged upon the "Development of the Skull of the Amphibia," will constitute the most important accessions to our knowledge of these subjects that have been obtained since the days of v. Baer, Bischoff, and Rathke. In the present paper Mr. Parker gives the results of his numerous and protracted observations upon the processes of ornithic development as exemplified in the common fowl. The design of the paper is to follow out completely the whole process of development in our type of skull. The earliest stages have already been described by Professor Huxley; and Mr. Parker takes up the tale at the fourth day of incubation, when the head of the embryo is only three lines long, and which constitutes his first stage; from thence onwards to the mature fowl he counts ten distinct stages all of course running continuously into one another, but still marked by prominent features which enable him to establish such a division. It is impossible in the space at our command to give a description even of the principal points of each of these stages; for the condensation of facts is very great, and their mutual bearing and connexion form the chief interest of the account. Still we would remark that the development of the pterygo-palatin bar of the maxillaries, stapes, epi- pro- opistho- and periotic bones, the bones of the sphenoidal and nasal region, is most excellently traced out, and rendered singularly clear and intelligible by the admirable and very numerous drawings with which the text is accompanied. The concluding observations of Mr. Parker will show the far-reaching grasp of knowledge with which the subject has been viewed. "Whilst at work," he observes, "I seem to myself to have been endeavoring to decipher a palimpsest, and one not erased and written upon again just once, but five or six times over. Having erased, as it were, the characters of the culminating type—those of the gaudy Indian Bird (Pheasant),—I seemed to be amongst the sombre Grouse; and then, towards incubation, the characters of the Sand Grouse and Hemipod stood out before me. Rubbing them away in my *downward* work, the form of the Tinamous looked me in the face; then the aberrant Ostrich seemed to be described in large archaic characters; a little while, and these faded into what could be just read off as pertaining to the Sea Turtle (or, as Professor Huxley has suggested, to the Rhynchosaurian Lizard); whilst underlying the whole, the Fish, in its simplest Myxinoid form, could be traced in morphological hieroglyphics."

THE SOURCE OF SCARLET FEVER POISON.

WHILST we know much of its mode of operation upon the body, we remain profoundly ignorant of the nature and source of the poison of scarlatina, and he must be a bold man who will venture to erect, upon our present stock of data, a theory as to its origin. Dr. Carpenter, of Croydon, however, who speaks with great authority on sanitary matters, has broken fresh ground on this point, and, in a very interesting and suggestive paper read to the Medical Society, brought forward a series of facts which, he believes, go far to show that the poison of scarlet fever is an emanation resulting from incipient decomposition of the blood of vertebrated animals, either healthy or diseased, and produced under the influence of certain conditions of temperature, magnetic state, and moisture; this poison being more virulent, perhaps, when produced from diseased blood. Dr. Carpenter detailed the history of various outbreaks of scarlet fever occurring in localities where slaughter-house refuse had been freely used as manure, or in houses contiguous to places at which it had been stored, or such as were so placed as to receive emanations from decomposing blood. Dr. Carpenter did not deny the contagiousness of scarlet fever, but he argued for its origination as it were *de novo*, in the manner indicated. He further stated that, though the enforcement of ordinary sanitary precautions, such as are now in force, did not prevent the occurrence of the disease, yet it very materially influenced the mortality; and he adduced a number of facts, which he gathered from the condition of Croydon, to show that in those houses from which sewer emanations were rigorously excluded, and in which ventilation and cleanliness were observed, scarlatina was robbed of its virulence, and became a mild affection; where as in the badly-sewered and badly-built portions of the town the disease was very fatal. He expressed the belief that scarlatina would be shorn of its fatality if blood were not allowed to be shed in our towns and villages except under proper regulations by which it should be excluded from the sewers, and our houses were probably hygiened. Such is the gist of Dr. Carpenter's paper.

TRANSPIRATION OF WATERY FLUID BY LEAVES.

WE learn from the number of *Nature* for Jan. 5th that Professor McNab has been pursuing his investigations on the transpiration of watery fluid by leaves. The plant used in all experiments was the common laurel (*Prunus lauro-cerasus*), and the fluid to test the rapidity of the ascent lithium citrate. The following are some of the more important results arrived at:—The total quantity of water in the leaves was found to be 63·4 per cent., but of this the proportion of that which could be received by calcium chloride, sulphuric acid, or by the action of the sun, was only from 5 to 6 per cent.; hence Dr. McNab calculates the amount of transpirable fluid in the stem and leaves to be between 6 and 7, the amount of fluid in relation to cell-sap to be between 56 and 57 per cent. The rapidity of transpiration he found to be in sunlight 3·03 per cent. in an hour; while in diffused daylight it was only ·59, and in darkness ·45 per cent., in the same time. These experiments were made when the plant had access to water by means of its stem. When the leaves were exposed without any means of supplying themselves again, the following results were obtained:—In a saturated atmosphere in the sun, 25·96 per cent. was transpired in an hour; in a dry atmosphere in the sun, 20·52 per cent. In the shade the numbers were reversed—viz., in a saturated atmosphere, nothing; in a dry atmosphere, 1·69 per cent. When immersed in water, the leaves absorbed 4·57 per cent. of their weight in seventeen hours; in a saturated atmosphere, nothing whatever in eighteen hours. The under surface of the leaf transpired nearly ten times as much as the upper surface.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The meeting of the American Medical Association at San Francisco was not only the great medical event of the year, but equally of the quarter of a century of the Association's existence. As Professor Stillé, the president, very aptly remarked, when the Association was organised, in 1847, California was a wilderness and San Francisco was almost unknown. A journey to this *terra incognita* was an undertaking full of adventure, which only the most daring frontiersman was willing to attempt. Now the trip across the continent is but a holiday excursion, which the old and young, rich and poor, daily enjoy. California has become one of the most important states in the Union, and San Francisco a populous city. The Association met in Pacific Hall, May 2nd, and on the roll of the Convention were the names of 200 members in attendance, representing twenty-three different states, two territories, the United States army and navy, and several foreign states. Dr. Stout, on the part of the profession of California, made an address of welcome, and the President delivered the annual address before the Association. His theme was that which forms the staple of our annual discourses—medical education. He strongly recommended a union of schools in their efforts to secure reform. Two prize essays were announced—viz. (1) "On the Chemical Construction of Bile," by Dr. E. R. Taylor, of Sacramento, California; and (2) "The Direct Method of Artificial Respiration of persons apparently dead from Suffocation by Drowing or from other causes," by Dr. B. Howard, of New York. The sections on Surgery, Medicine, Obstetrics, and Physiology, were organised, and discussed the various papers referred to them. The reports of committees were few in number, and of little importance. Dr. Gibbons presented a valuable paper "On the Medical Botany of California," embracing specimens, with descriptions of 180 indigenous plants. The Association heartily adopted the proposition of Dr. Storer, to aid in the formation of a memorial fund in honor of the late Professor Simpson. A resolution in favor of the estabment of professorships of hygiene in medical schools was adopted, and also one recommending the formation of State Boards of Health. The "apple of discord" was the woman question. This was introduced in the form of a proposed amendment to the constitution of the Association, as follows:—"Nothing in this constitution shall be so construed as to prevent delegates from colleges in which women are taught and graduated in medicine, and hospitals in which medical women-graduates attend, from being received into this Association." After a long and most exciting debate, the resolution was indefinitely postponed. Subsequently the subject was brought up in another form, a resolution being presented "that the American Medical Association acknowledges the right of its members to meet in consultation the graduates and teachers of Women's Medical Colleges, provided the code of ethics of the Association is observed." This resolution also met violent opposition, and was indefinitely postponed. The scientific discussions of the session were very meagre, both in the sections and in the Association. The members were most hospitably entertained by the profession and citizens of San Francisco, and though this, like other annual gatherings of the profession in this country, did little to advance the science of medicine, it did much to promote good feeling and strengthen the ties of professional fellowship.

New York, May, 1871.

Foreign Gleanings.

ULCERS OF THE CERVIX UTERI.

M. Despres, surgeon to the Paris hospital for women affected with venereal diseases, has published a book on the above subject. The work has been succinctly analysed in the *Montpellier Med.*, April and May, 1871, and the reviewer quotes from the work the following passage, which is worth attention:—"The diseases of women have often proved a rich mine to certain authors, and the extensive practice derived from their writings has mostly been founded on the use of some new agent, hence the many remedies which have been proposed. On the other hand, we find unbiased men giving an account in their works of the therapeutical means which have been extolled, registering failures and occasional success. I am anxious to state my belief that the latter depends mostly on coincidences, and that the cures might have been obtained by other means. It should be remembered that most specialists in the diseases of women use but one mode of cure; such as the red-hot iron, lunar caustic, and more or less concentrated solutions of the latter; all, however, curing ulcers of the cervix in about the same lapse of time." M. Després ignores all internal remedies, and relies on topical applications. He considers, however, that complete continence, cleanliness, an occasional cauterisation by any agent, are very efficacious. especially when patients are treated early, and subjected to constant control. The author adds that he has found the *plug* very useful, and gives the following description of it:—Take a small piece of coarse gauze, in which a pledget of cotton wool is placed after it has been filled with about 15 grains of powdered alum. Fold the gauze over the wool, and tie the ends of the former with a thread five or six inches long, which is allowed to hang out of the vagina to facilitate the removal of the plug. The latter should remain twenty-four hours.

HYPODERMIC INJECTIONS OF SUBLIMATE IN SYPHILIS.

Dr. Hagens has published an important article on this subject in the *Ungar. Med. Presse*, No. 38, 1870. The author thinks that the injections have met with undeserved praise and blame. To settle the matter, he applied the method extensively, both in private and hospital practice, for about fifteen months. Full and very interesting details are given, the author finally laying down the following propositions: 1. The opponents of this method have unjustly taxed it with inefficiency and harmfulness. 2. These injections are superior to all other kinds of mercurial treatment, on account of their rapid results, the small and regulated doses required, the non-interference with the digestive organs, and the possibility of allowing the patient to go out (with some restrictions as to diet). Relapses after the hypodermic method are not more severe than with other modes of using mercury, nor are they so numerous. 3. This method is relatively powerless as regards some symptoms, especially affections of the mucous membrane of the oral and nasal cavities, and psoriasis palmaris. Nay, the injections may give rise to these scaly eruptions when relapses take place, and a combination of this method with others is then advisable. 4. The hypodermic treatment should, therefore, not be regarded as the only mode of using mercury and applicable in all cases, nor can the result be always fully guaranteed. But the method may be recommended for more extensive application than it has hitherto enjoyed, without excluding the other means of introducing mercury into the system.

SUBPERIOSTEAL RESECTION OF JOINTS.

This method has lately been illustrated in a striking manner by Dr. Czerny. This surgeon showed, at a meeting of the Medical Society of Vienna, the elbow-joint of a girl who had just died of pneumonia, and upon whom subperiosteal resection had been performed by Prof. Billroth three years before. The form of the joint had been regenerated, the cartilaginous covering and synovial membrane being clearly apparent, as in a healthy articulation. The shape of the articular surfaces, however, was somewhat different from the normal aspect, and had some analogy with the structure of the knee-joint, as interarticular ligaments had been thrown out, but without interfering with mobility. The insertion of muscles looked quite natural, and the tendon of the biceps being spread out, gave more power and leverage to the movements of flexion. We have had, on several occasions, to remark that this mode of operating has not found sufficient favor in this country. It is high time, seeing that Billroth has been so wonderfully successful in this case, that the benefits of subperiosteal resections should be extended to British patients.

SAPONIFIED COD-LIVER OIL.

Dr. Van den Corput, of the St. John's Hospital, Brussels, has advocated for some time a combination of hydrate of lime with cod-liver oil in tuberculosis. He directs the preparation of boluses wrapped in gum and sugar in the following manner:—Pure cod-liver oil, thirty drachms; make a soap with hydrate of lime of the consistence of pills, and flavor with essential oil of bitter almonds, or oil of aniseed, fifteen minims. Let the boluses weigh from four to five grains, and protect them with a mixture of one part of powdered iris root and three parts of powdered sugar. The boluses may also be wrapped in etheral tincture of tolu. The patient may take from six to eight per diem, two at a time, immediately *after* meals. To this calcareous soap a salt of morphine, or extract of aconite, or extract of henbane, may be added, as well as any other substance which the medical man may think indicated in a particular case.

LOCAL ANÆSTHESIA.

Dr. Spessa states, in the *Bulletin des Sc. Med.* (Italy) that he has succeeded in preventing pain, during the slitting of a fistulous tract, by injecting a solution of morphine into the tract before the use of the knife. The same author had occasion to touch the vulvar vegetations of a girl with butter of antimony: the pain was very acute, but disappeared on the part being brushed over with a solution of morphia. A boy of fifteen, suffering from hip-joint disease, required an issue over and behind the great trochanter. An injection of morphine was first made over the region, and Vienna paste applied, which latter remained about eight minutes. The paste did not give any pain. Dr. Spessa states that he would be glad to hear that a fair trial has been given to this mode of using morphia.

DESTRUCTION OF THE ANTERIOR LOBE OF THE BRAIN; NO PARALYSIS.

A man, aged thirty-two, was struck, from a height of 25 yards, by a heavy pail, which shattered the skull and drove out brain-substance. The loss of splinters and cerebral matter for the next few days was very considerable. The mind remained clear, and the limbs could be freely moved. No notable change occurred until the sixteenth day after the accident, when the patient died of exhaustion. The right anterior lobe was almost entirely gone, and the middle lobe, on the same side, was found compressed by a flattened and hardened clot. M. Letenneur, the patient's surgeon, does not say whether the man had any difficulty in articulating. This is an omission much to be regretted.

DOUBLE MERCURIAL SALTS.

Professor Ranieri Bellini stated, at the meeting of the Medico-Physical Society of Florence (April 30th last), that the double salt, hydrargyrate of chloride of ammonium, has many advantages over corrosive sublimate in the treatment of syphilis. The hydrargyrate of hyposulphide of an alkali may also be used, but these salts should be taken fasting. They are decomposed within the organism, depress the action of the heart, and lower the temperature. They do not accumulate in the economy, nor do they give rise to salivation or to mercurial cachexia.

VACCINATION EXPERIMENTS ON CATS AND DOGS.

Drs. Horand and Peuch publish, in the *Lyon Médical* (March 19th, 1871), a series of experiments in this direction; and they find that both cats and dog are insusceptible of the development of vaccine lymph.

News Items, Medical Facts, &c.

A Universal Pharmacopœia for the German Empire.—A committee of twelve members is to be appointed to frame a Pharmacopœia for the whole of the German confederation. Prussia is to send three members; Saxony, Mecklenburg, and Bavaria each two members; Wirtemberg, Baden, and Hesse each one member. The committee will be empowered to call to their assistance men whose special knowledge may prove useful. It is anticipated that the work will be ready by the 1st of January, 1872.

Alkaloid detected by Picric Acid.—Mr. Hager has found that this acid precipitates various alkaloids from their solutions, such as brucine, strychnine, veratrine, quinine, chinchonine, and some alkaloids of opium. Morphine and atropine, however, are precipitated only from neutral and concentrated solutions; but the precipitate dissolves pretty easily in water. Glucosides, caseine, and pseudo-morphine resist the action of the picric acid.

Trichinosis.—The "Allg. Med. Cent. Zeit." states that a gentleman in Berlin, holding an appointment in the Cival Service, died a few days ago from trichinosis. A certain number of people in the neighborhood of his residence were taken very ill with the same complaint, but recovered. All had partaken of pork sold by one and the same butcher. It is not said whether the meat was boiled or not.

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JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

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Lettsomian Lectures

ON

EXCISIONAL SURGERY OF THE JOINTS FOR DISEASE.

Delivered before the Medical Society of London.

By Frederick James Gant, F.R.C.S.,

Surgeon to the Royal Free Hospital.

LECTURE II.—Part I.

THE HIP-JOINT.

Mr. President and Fellows,—In considering excision of the knee-joint, I endeavored to subvert the position commonly held—that the operation of joint-excision for disease, and that of amputation of the limb above the seat of disease, should be regarded as alternative procedures for the selection of one or the other, when operative interference becomes necessary in the treatment of disease of the joints. When, in the course of joint-disease, either operation becomes justifiable, the other should not be entertained; a comparatively early period being alone appropriate for excision, a comparatively late period alone appropriate for amputation. It is, I conceive, this widely prevalent misapprehension of relationship which has hitherto arrested the progress of excisional surgery, and burthened it with a discouraging proportion of unsuccessful results. Here, therefore, *in limine*, renouncing the false association with amputation, I would break through the tradition of the past. On the other hand, I also endeavored to show that the true comparison of joint-excision for disease is with the natural cure of joint-disease; both these principles of treatment having in view the production of anchylosis. The importance of substituting this standard of comparison for excision lies in the obvious fact that such reference throws light on the conditions of disease which are appropriate for operative interference by excision; and the guiding knowledge of pathology thence derived, in combination with a similar knowledge gathered from an analysis of carefully recorded cases, supplies a sure basis for the practice of excisional surgery.

Excision of the hip-joint for disease well illustrates this position, and the more especially because amputation should here be scarcely entertained.

The *natural cure* of hip-joint disease has not yet been investigated in a series of cases sufficiently accurate and comprehensive for comparison with the results of excision. Such an inquiry should have regard (1) to the joint, in respect to five essential particulars—the appropriate nature of the anchylosis and the proper position of the limb for its functional use, the average duration of the period of recovery, and the permanent character of that issue, with its average frequency; (2) the liability to life or the mortality of the natural cure. It would be from these points of view, as to limb and life that the results of excision must be compared and its relative value estimated. Pending this clinical inquiry, we may approach the question from our present knowledge of pathology.

What, then, are the changes which the joint and constitution undergo in the course of natural cure by anchylosis? In the joint there is a two-fold process of destruction and reparation. A piecemeal or molecular excision, so to speak, is constantly progressing, apparently by absorption, and certainly by the draining away of débris of bone in the discharge until two healthy opposed surfaces are reached, so that union may at length be effected. This natural cure of joint-disease entails a protracted period of recovery, extending even to many years, as compared with that of weeks or months required for recovery after excision. During this ordeal the constitutional vigor is reduced, subsequently leaving the patient stamped with the aspect of suffering in former years. Occurring also as it often does during the growing period of life, the reserve power, which should have been gained to meet the exigencies of after-life, is used up prematurely by incessant demand in the long process of reparative anchylosis. Persons who have undergone the natural cure of diseased hip-joint, for example, may be seen hobbling about the streets, being easily re-
the characteristic gait of old-standing
their sallow and prematurely
This constitutional decrepitude
ed by a remarkable accelera-
rt of the process. In a case

represented by specimen No. 7 of the hip-joint series (exhibited before the Society), an eminent surgeon differed with myself and others respecting its diagnosis; nature subsequently undertook the operation of excision *en masse*, for she severed and discharged the greater portion of the head of the femur through one of the fistulous tracks. This natural excision of a joint—one of the only two, I believe, on record—will be singularly suggestive to operative excisionists, and it should be equally admonitory to those surgeons who blindly oppose the operation.

The conditions of hip joint disease appropriate for excision.—It was formerly held, and may still be maintained by some surgeons, that excision of the hip-joint for disease should be resorted to only in the following conditions, constitutional and local:—

(1) Only in the last stage of the disease or of constitutional endurance.

(2) Only when the extent of disease is limited, the acetabulum being free from disease and the amount of pelvic disease trivial.

(3) Only when the head of the femur is dislocated.

The reverse of these rules, or nearly so, may be partly gathered from my cases, and can, I believe, be justified by accumulated experience, drawn from the results of a large but varying number of cases, with regard to each such rule in question.

Of the three conditions laid down respecting excision of the joint in general, the first only applies to the hip-joint.

(1) Destruction of the articular cartilages, without the supervention of anchylosis, will always justify operative interference by excision. The constitutional condition will probably *not* then have advanced to hectic and emaciation. But the state of the general health should primarily determine the necessity for excision in all cases, and not any arbitrary consideration of the period of the disease and the condition of the joint. Whenever, therefore, the general health is manifestly failing, whatever may be the stage of the hip-joint disease, excision should be resorted to, and without further delay. This guiding rule was strongly urged and clearly illustrated by Mr. Hancock in his recent lectures at the Royal College of Surgeons. On the other hand, the most extreme state of constitutional exhaustion, previous to the operation of excision, may be followed by recovery after removal of the diseased bone—as the successful results in my own series of hip-joint cases, 1, 2, 4, and 6, clearly show.

(2) Osseous anchylosis with malposition of the limb will *not* justify the peril of attempted excision. Section of the neck of the femur is practicable, whereby the limb can be brought down to a straight position. This principle of operation was lately practised in a case by Mr. W. Adams, and successfully.

(3) The *extent of bone* di ay be con-
siderable, and involve both etabu-
lum. In the *femur* the
clude the head, neck, g
entering even into the m
acetabulum the diseased
whole floor of this cavity,
joining portions of the ili
Neither of these conditio
disease prohibits excision;
unfrequently recovers itself
of the femur has been remo
tact and attrition.

(4) Dislocation is unfavorable for excision, as implying an advanced stage of the disease constitutionally. The significance of this local condition will therefore diminish in proportion to the absence of marked hectic and emaciation.

Operation.—Excision of the hip-joint was originally proposed by White, of Manchester, in 1769; but the operation was first performed by Schmalz, of Pirnie, Saxony, in 1816, and first performed in this country, and for the second time in Europe, by Anthony White, of the Westminster Hospital, in 1821. It was repeated by Hewson, of Dublin, in 1823, after which period the operation fell into disuse until its revival by Sir William Fergusson in 1845. Since that period it has been performed by many surgeons, and in a large number of cases.

The hip-joint, deeply placed owing to the neck of the femur, is reached most conveniently by a T-shaped incision; the vertical line, perhaps slightly curved, being made from just above the great trochanter downwards on the shaft to about three inches or less in extent, and the transverse line about half that extent on the summit of the longitudinal incision. The very limited extent of this latter incision avoids the femoral vessels anteriorly, and the crural nerve posteriorly. In disease of the joint, with perhaps consequent dislocation backwards on the dorsum ilii, and wasting as the result of long-standing disease, these incisions seem to be almost invited, so prominently does the trochanteric portion of the femur abut under the integument. By detaching the integument on either side of the vertical incision, keeping the knife turned towards the femur, especially on its inner side, the subjacent portion of femoral shaft is exposed; then, sinking the knife vertically in the transverse incision, just above the trochanter, the attachment of muscles thereto is divided, so that the finger can be readily passed down to the joint and its state ascertained. The capsular ligament will generally have given way or entirely disappeared. To turn out the remnant head of the femur for excision it may be necessary to abduct and avert the limb, when, with a touch of the knife on the bone, the round ligament yields and the head starts from its socket. Or this ligament also may have disappeared, and the head and neck of the femur be so reduced, and the acetabulum so patulous, from more advanced disease, that the bone can be readily dislodged and hooked out with the finger. In a third class of cases dislocation backwards has taken place. In any case, however, adduction of the limb across the opposite thigh presents the bone for application of the saw; and then the diseased portion is removed by one or more successive slices, the integument on either side being protected by a curved spatula. The chain-saw may be used by those who prefer it. A gouge may be used to finish off the femoral excision, instead of unnecessarily removing any healthy portion of the trochanter, if that be left, or of the adjoining shaft. The acetabulum should be scraped
n gouged, to remove any carious or de-
rtion; or more extensive pelvic excision
ecessary, and has proved successful. But
l caries, acetabular or pelvic, will often
itself, the former having been maintained
ant attrition of the femoral head. Any
age is easily arrested by torsion. I have
d occasion to apply a single ligature in any
t excision.

sion of the trochanter major may occa-
prove sufficient, caries of this portion of

the femur existing without disease of the hip-joint. I have had one such case, and with a successful result.

The *after-treatment* of excision, whether of the hip-joint or of the great trochanter alone, is very simple. The limb may be laid straight in bed, and retained in position only by a small side pillow or roller sand-bag, without absolutely fixing the thigh. Or a long splint may be applied, extension being made from the opposite thigh, as recommended by Sir W. Fergusson. Of these two modes of after-treatment I prefer the former, especially for the joint-operation. The section-end of the femur is drawn up by muscular action, and hitches just above the acetabulum, which, having been generally more or less superficially carious, is thus left to recover itself, undisturbed by any attrition of the femoral end of bone; while a new and firmly fibrous movable joint forms where the end of bone rests above the acetabulum. There is little or no tendency to displacement after hip-joint excision, and the slight extra shortening which results from thus leaving the limb to itself is unimportant compared with the advantages in regard to the acetabulum, and the formation of the best kind of new joint requisite for the functional use of the limb in progression, as well as for support. All my cases were treated in this way, and with perfect success.

Results.—(1) In relation to life or mortality. In 111 cases collected by Dr. Hodges of *unrecorded conditions* of operation, 56 recovered, 53 died from the combined effects of the operation and the previous disease, and in the remaining 2 cases amputation was resorted to. Thus about 1 in 2 died—a very high mortality. But Mr. Hancock presents the following very interesting results as to the mortality with reference to certain *guiding conditions* of disease for operation:—The *acetabulum*, in a healthy state, gave a mortality of 6 in 18 cases, or 33 per cent. On the other hand, acetabular *disease* has had more favorable results of operation. Of the 10 cases in which perforation had taken place, 6, or 60 per cent., recovered; 2 only, or 20 per cent., died. Of the 4, in which not only perforation existed, but abscess also within the pelvis, 2 recovered, 2 died,—50 per cent. either way. Of the 3 in which the acetabulum was trephined for the evacuation of matter from the pelvis, 2, or 66 per cent., recovered; 1, or 33 per cent., died. Therefore, in the whole 20 of these apparently most unfavorable cases for excision, the mortality was only 5, 1 in 4, or 25 per cent. *Dislocation* of the head of the femur having taken place, the percentage of recoveries was actually 46, against 23 where it had remained in its socket; the total number of cases compared being 143. Of my own 8 cases of hip-joint excision, in 4 there was dislocation, and they all recovered equally with the 4 in which dislocation had not occurred.

Another equally large series of cases—112, British and foreign—has been collected by Dr. R. R. Good, late surgeon in the Confederate American army. This series is the more complete as it embraces the most *essential particulars* respecting excision of the hip-joint for disease, both in regard to its mortality and the state of the limb. We are thus enabled to take a commanding view of the whole subject; and in order to observe the results and their relationship more clearly I have tabulated them.

Tabular view of 112 *cases of hip-joint excision, British and foreign; period* 1860–68.

Collection of Cases by Dr. R. R. Good.

Number of cases, 112.

Recoveries, 52, or 46·43 per cent. Deaths, 60, or 53·57 per cent., caused by exhaustion, 22; phthisis, and progress of the disease, 10; pyæmia, 5; caries of the pelvis and purulent discharge, 4; diarrhœa, 3; exhaustion, with rapid pulmonary congestion, 2; tubercular meningitis, tetanus, diphtheria, amyloid degeneration of the organs, diffuse phlebitis of the limb, osteomyelitis, hæmorrhage, acute necrosis of the femur, nervous collapse and pneumonia, each 1.

Disease recorded in 29 cases.—Scrofula, 3; 2 deaths, or 66·67. Cold, 4; 1 death, or 25·0. Injury, 20; 4 deaths, or 20·0. (Two cases not included.)

Duration previous to operation, recorded in 58 cases.—Average duration, 2 years 3 months. In *acute* cases, or before 7 months: of 9 cases, 7 deaths, or 77·7. In *chronic* cases, or 2 years or more: of 30 cases, 10 deaths, or 33·33—a balance in favor of chronic disease of 44·45.

Age in the 52 recoveries, average, 11 years; the extremes were 2 years and 58 years. Age in the 60 deaths, average, 14 years; the extremes were 3 years and 40 years. Age from 2 years to 12 years, 59 cases; 24 deaths, or 40·67. From 12 to 20 years, 25 cases; 15 deaths, or 60·0. From 20 to 58 years, 17 cases; 13 deaths, or 76·47.

Sex: 79 males; 30 females; (in 3 sex unrecorded.)

Bone excised, recorded in 105 cases.—(*a*) Femur: Section above great trochanter in 49 cases; 30 deaths, or 61·23. Section below great trochanter in 56 cases; 27 deaths, or 48·21. A balance in favor of section below of 13·01. (*b*) Acetabulum —*Diseased* in 72 cases, or 64·28; deaths 39, or 54·16. Abscess of pelvis, recorded in 6. cases; 2 deaths. Perforation in 11 cases (of the 72); 6 deaths, or 54·55. Perforated surgically in 5 cases (of the 72); 1 death, or 20·0. Gouged in 33 cases; 15 deaths, or 45·45. No interference in 6 cases; 5 deaths, or 83·33.—*Healthy* in 14 cases; deaths 7, or 50·0. As compared with the mortality of diseased condition, 54·16—a balance of only 4·16 in favor of healthy condition. Dislocation, recorded in 17 cases; 6 deaths, or 35·29. As compared with *non*-dislocation in 93 cases; 52 deaths, or 55·92: a balance of 20·63 in favor of dislocation.

Countries.		Cases.		Deaths.
Germany	...	34	...	22, or 64·71
England	...	32	...	11, or 34·37
America	...	29	...	13, or 44·83
France	...	14	...	12, or 85·71
Russia	...	3	...	2.
		112		

Author's Collection.

1. Charing-cross Hospital; period, 1862–70. (Per Mr. Hancock.) Number of cases, 15; recoveries, 13; deaths, 2.

2. Royal Free Hospital; period, 1863–70. Number of cases, 11; recoveries, 10; deaths, 1.

3. King's College Hospital; period, last five years. (Per House-Surgeon.) Number of cases, 10; recoveries, 9; deaths, 1, six months after operation from tubercular meningitis.

4. London Hospital; period, last five years. (Per Mr. J. McCarthy.) Number of cases, 10; recoveries, 4; deaths, 5; 1 progressing favorably.

5. St. Thomas's Hospital; period, 1866–70. (Per Mr. F. Churchill.) Number of cases, 8; recoveries, 1; deaths, 5; 2 under treatment.

6. Westminster Hospital; period, last five years. (Per Mr. F. Mason.) Number of cases, 6; recoveries, 6.

7. Guy's Hospital; period, 1864–69. (Per Mr. T. Bryant, from Dr. Steele, superintendent.) Number of cases, 6; recoveries, 5; deaths, 1.

8. Liverpool Royal Infirmary; period, last five years. (Per Mr. W. J. Cleaver.) Number of cases, 4; recoveries, 3; deaths, 1.

9. Great Northern Hospital; period, last five years. (Per Mr. J. Willis.) Number of cases, 3; recoveries, 3.

10. Chalmer's Hospital, Edinburgh; period, last six years. (Per Mr. P. H. Watson.) Number of cases, 3; recoveries, 1; deaths, 2.

11. St. Mary's Hospital; period, last five years. (Per Mr. Gascoyen.) Number of cases, 2; recoveries, 2.

12. Royal Albert Hospital, Devonport; period, last five years. (Per Mr. W. P. Swain.) Number of cases, 2; deaths, 2.

13. Royal Sea-Bathing Infirmary, Margate; period, last five years. (Per Mr. J. R. Clouting.) Number of cases, 1; deaths, 1.

14. Royal Infirmary, Edinburgh; period, 1865–69. (Per Mr. P. H. Watson.) Number of cases, 1; deaths, 1.

15. St. Bartholomew's Hospital; period, 1866–70. (Per Mr. Callender.) No cases.

Taking the results of the preceding collections of cases, three *general* conclusions may be established respecting the rate of mortality from hip-joint excision for disease:—1. In different countries a very different mortality, being highest in France, and lowest in England. (2) An average death-rate of 1 in 4 or 5 (about the same as that of knee-joint excision for disease). (3) Very different death-rates in the hands of individual surgeons, British and foreign—varying from no mortality to 1 in 2 or 3, 1 in 5, 2 in 3, 4 in 5, or even total mortality; thus differing far more extremely than the mortality of knee-joint excision for disease. It can scarcely be doubted that the conditions of disease, both local and constitutional, in the cases selected for excision, have mainly determined this different resulting mortality; although the mode of performing the operation and the after-treatment have also been influential.

Mortality compared with hip-joint amputation.—In 42 cases of amputation at the hip-joint for chronic disease, 24 recovered, and 18 died, a mortality nearly as high as 1 in 2. It will be observed that the total number of cases here referred to is small, in proportion to the number of hip-joint excisions for disease. But the whole number of hip-joint amputations hitherto published is only about 126, including the cases of injury and disease.

(2) *State of the Limb.*—In Dr. Hodges' collection of 111 cases, 56 recovered, "with more or less useful limbs." In Dr. Good's collection of 112 cases, of the 52 recoveries, 42 patients could use the limb, and in the remaining 10 cases this result was not noted. The 42 cases are divided as follows:—

19 could walk without support.
9 ,, with the help of a stick.
1 ,, ,, two sticks.
1 ,, ,, a splint.
1 ,, ,, a crutch.
2 ,, ,, two crutches.

In 9 the manner of walking is not specified. In 40 of the 52 recoveries it was specially noted that the limb supported the weight of the body. In one case crutches were necessary for this purpose, and in the remaining 11 cases this particular was not noted. The movements in the new joint were reproduced in 28 cases, and in only 1 immovable anchylosis was the result. The ultimate period when the patients were seen after operation varied from three months to five years. Their cure was ascertained, in most cases, after two or three years. Of the 52 cured, the average period of known permanent result was nineteen months and four days. In my own 8 cases, the shortest period of known permanent cure was two years and a half; and the longest period of known permanent result, five years.

The average duration of the period of recovery has not generally been noted in the records of cases. In Dr. Hodges' collection of 49 cases wherein this particular was observed the average was 230 days. In my own cases the average period of *union* was three months. In extreme cases of hip-joint excision—extreme as to the extent of bone removed—the resulting state of the limb may yet be successful. It was so in my own two such cases, after removal of the upper end of the femur, to four inches and four and a half in length, with one inch more of cancellated bone, and entering the medullary canal in both cases; and also in two cases of acetabular and pelvic bone-disease, after removal of the affected portions of bone by Mr. Hancock and Mr. Erichsen respectively,—the patients recovering, and with useful limbs.

Section, rather than excision, of the upper end of the femur is a procedure which has been devised, and practised in a few instances, for failure of the natural cure—osseous instead of ligamentous anchylosis of the joint, with useless malposition of the limb, as by flexion on the thigh and abduction. This condition, calling for operative interference, is comparatively rare.

Section of the femur has been performed, either between the trochanters, or in the neck, about its middle, and with successful results. The one line of section was originally proposed and performed by Dr. Rhea Barton, of Philadelphia, in 1826. A crucial incision was made over the great trochanter, seven inches in length and five inches in the horizontal direction. A fine saw was introduced, the femur divided transversely between the trochanters, and the limb brought down. The result was successful. An artificial movable joint was formed, but seven years afterwards anchylosis ensued, and two years subsequently the man died of phthisis, nine years after the operation. A similar operation in situation—between the trochanters—but an *excision* of a transverse plate of bone of an elliptical form upwards, by means of the chain-saw, was performed by Dr. Lewis Sayre, of New York, in two cases, both in the year 1862. The object of this procedure was to form a false joint of a ball-and-socket character. The first case was completely successful at the end of six months, the patient, aged twenty-six, being able to stand on either leg without crutch or cane; and upwards of five years afterwards the result was permanent; the man could move and walk with practical agility. In the second case the operation was followed by abscess and necrosis; but the patient, a female aged twenty-four, died, apparently of tubercular pneumonia. Post-mortem examination showed that an artificial joint had formed. The articular surfaces were tipped with cartilage, and provided with a synovial membrane, and there was a complete capsular ligament.

Subcutaneous section, and higher up—in the neck of the femur,—was first proposed and practised by Mr. William Adams, in December, 1869. The object of this procedure was to procure an artificial movable joint; that result having failed, osseous anchylosis, but with the limb in a straight position, was sought to be established and obtained. A long tenotomy knife was entered a little above the great trochanter, and passed down to the neck, the capsular ligament was opened freely, and the neck of bone divided by a narrow, fine saw, applied from before backwards. The tendons of the long head of the rectus, the adductor longus, and tensor vaginæ femoris muscles, were then divided, the limb was brought down straight, and fixed by a long interrupted Liston's splint. Five months after this operation and subsequent treatment, the man, aged twenty-four, was exhibited at this Society, where he walked about the room without any assistance—a successful result which has since become permanently secured.

This operative procedure has since been practised successfully in three other cases, by Mr. T. R. Jessop (of Leeds), Mr. F. W. Jowers (of Brighton), and Mr. Furneaux Jordan (of Birmingham). The fact of four consecutively successful cases having occurred goes so far to establish subcutaneous section of the neck of the femur, as a surgical procedure for osseous anchylosis of the hip-joint, with malposition of the limb.

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AN ABSTRACT
OF A
Course of Lectures
ON THE
INTERNAL DISEASES OF THE EYE AS SEEN WITH THE OPHTHALMOSCOPE.

Delivered at the Royal London Ophthalmic Hospital, Moorfields.

By J. Soelberg Wells,

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LECTURES VII. & VIII.

DISEASES OF THE OPTIC NERVE.

Gentlemen,—A hyperæmic condition of the optic nerve occurs as a part symptom of hyperæmia of the retina and choroid, and is chiefly recognised by the increased redness of the disc, over-fulness of its capillaries and small nutrient vessels, and the indistinctness of its margin, especially at the nasal side.

Inflammation of the optic nerve (*optic neuritis*) generally presents the following well-marked ophthalmoscopic symptoms, which are more or less present in the different forms of the disease. At the outset there is some hyperæmia and œdema of the disc, causing it to appear red and somewhat opaque and swollen. But soon the inflammatory symptoms became more marked: the swelling and prominence of the disc increase, its outline is irregular and indistinct, so that there is no sharply defined line between it and the retina; the exudation and the proliferation of the connective-tissue elements giving it a peculiar striated or "woolly" appearance. The inflammation generally extends more or less on to the retina, rendering the latter hazy and indistinct. The retinal veins are much dilated, very dark and tortuous, dipping here and there into the infiltration, so that they are at some points hidden by it and interrupted in their course. Whilst the veins are gorged with blood, the retinal arteries are often so much diminished in calibre as to be hardly visible. On close observation we notice that numerous small vessels are developed on the disc, rendering it very red and vascular; its margin looking perhaps as if it were covered with a red fringe. On and around the disc are also strewn numerous striated blood effusions of varying size and shape. On account of the great swelling and prominence of the disc, its details can be distinctly seen at some distance in the erect image.

We may distinguish three typical forms of optic neuritis. 1. The *engorged papilla* (Stauung's papille), in which the inflammation commences in the papilla (optic disc) and extends upwards along the trunk of the nerve, generally stopping short at the lamina cribrosa. Hence this form might very well be called "ascending neuritis." 2. *Descending neuritis*, in which the inflammation commences extra-ocularly, and extends downwards to the disc. When the inflammatory symptoms are chiefly confined to the periphery of the disc, it is sometimes called "perineuritis." 3. *Retro-ocular neuritis*, in which the tissue changes do not extend to the disc, the disease only occurring at certain points in the nerve, and not involving continuously its whole trunk.

It must, however, be borne in mind that the distinctive characters of the engorged papilla and the descending optic neuritis are not always so sharply defined; and that the one form may pass over into the other, thus giving rise to a mixed group of ophthalmoscopic symptoms.

1. The *engorged papilla* is generally due to some impediment in the retinal circulation, which is soon followed by serous infiltration of the optic nerve, and subsequently by great inflammatory proliferation of its connective-tissue elements. The nerve, therefore, is much swollen, and closely encircled by the unyielding scleral ring, which of course strangulates it at this point, and still more impedes the circulation. The irritation produced by the compression is soon followed by inflammatory symptoms. Ophthalmoscopically, the engorged papilla is especially distinguished by great, though perhaps partial, swelling, opacity, and prominence of the disc; by the number and size of the hæmorrhages, which are strewn about, on, and around the papilla; and especially by the great dila-

tation, darkness, and tortuosity of the retinal veins, the arteries being at the same time small, attenuated, and often almost bloodless. The inflammatory infiltration is either almost entirely confined to the disc, or extends but to a short distance into the retina.

2. In *descending neuritis*, on the other hand, the opacity of the retina is more diffuse and extensive, reaching both deeper into its substance and further towards the periphery; hence it may often be appropriately termed "neuro-retinitis." The disc is of a faint greyish tint, and is much less swollen and prominent than in the last form; the hæmorrhages are also smaller in size and fewer in number. Small white opaque patches are sometimes noticed in the retina, near the disc.

When the inflammatory symptoms subside the morbid products are gradually absorbed, the swelling and opacity of the papilla diminish, the veins decrease in size and tortuosity, the hæmorrhages are absorbed, and gradually the disc and surrounding retina may nearly regain their normal appearance. But in severe cases the nerve generally becomes more or less atrophied, and at best mostly remains somewhat opaque, and of a pale creamy tint.

Optic neuritis generally affects both eyes, either simultaneously or after a short interval, more especially if the cause be intracranial. The sight is, as a rule, much impaired; but this does not necessarily correspond to the striking morbid alterations observed with the ophthalmoscope, for these may be all present and the patient be yet able to read the smallest print. The visual field is generally also affected, the pupil dilated and sluggish, and there are often marked symptoms of brain disease, frequently accompanied by intense headache.

The *causes* are very numerous. The engorged papilla may be due to morbid processes within the orbit, which produce protrusion of the eye and pressure on the optic nerve, thus impeding the retinal circulation. It is, however, most frequently caused by some cerebral affection, which either exerts a direct pressure on the cavernous sinus, and thus impedes the venous circulation in the optic nerve, or affects this by an increase in the tension of the intracranial circulation. Descending neuritis is sometimes due to meningitis or arachnitis; in which case the inflammation extends to the optic nerve, and travels down to the papilla and retina. My space will not, however, permit me to enter further into the various causes of optic neuritis; and I must, therefore, refer the reader to the larger treatises on ophthalmology.

The *treatment* must vary with the cause. At the very outset much good is often derived from mercurial inunction, and subsequently the iodide or bromide of potassium, together with the artificial leech or dry cupping. A seton at the nape of the neck often greatly relieves the intense headache.

3. In *retro-ocular neuritis* there is a certain degree of hyperæmia of the retina and disc; and they became veiled by a very delicate, diffuse, and slightly striated opacity. Small opaque striæ are, moreover, noticed on the disc, enveloping and hiding the point of exit of the vessels, and extending perhaps somewhat along their walls on to the retina. According to Leber, cases of circumscribed central scotoma, combined with amblyopia, are mostly due to retro-ocular neuritis. At first they show the above-mentioned ophthalmoscopic symptoms; but later a white discoloration of the disc supervenes, generally remaining confined to the outer side, whilst the inner portion retains its red tint. This disease is especially met with in drunkards, great smokers, and persons who are much exposed to the wet and cold.

Atrophy of the Optic Nerve.

The chief general characteristics of atropy of the optic nerve which are observable with the ophthalmoscope are: a white or whitish-blue discoloration of the disc; diminution in the number and calibre of the little nutritive vessels on its expanse; thinness of the retinal vessels, especially the arteries; and frequently a peculiar form of excavation of the optic nerve. We may distinguish two forms of atrophy of the optic nerve: 1st, the primary or progressive; 2nd the consecutive.

1. In *primary atrophy* (more especially the forms met with in cerebral or cerebro-spinal amaurosis) the disc has lost its normal greyish-pink appearance, and looks pale and white like a piece of white paper, the plane of the disc being, however, quite level. The dead white color is due to atrophy of the nerve-tissue, and to hypertrophy and thickening of the connective tissue elements; it is, moreover, increased by the diminution in the blood-supply. Sometimes, however, the disc is of a stippled bluish-white or faintly greenish appearance, yielding a peculiar reflex. The bluish-white reflex is cause by atrophic changes in the nerve-tubules, which shrink back between the meshes of the lamina cribrosa (whose trabeculæ are often thickened by hypertrophy), which renders the details very distinct. In such cases there is always atrophic excavation of the optic nerve. The disc appears smaller, its outline being very sharply defined. The retinal vessels are diminished in size, the arteries looking like mere threads, whilst the nutritive vessels have perhaps quite disappeared; the veins are also diminished in size, but to a less extent. There are, however, exceptional cases in which the retinal vessels retain almost their normal calibre, even in an advanced stage of atrophy. The greatest attenuation of the vessels occurs in atrophy of the optic nerve following retinitis or choroido-retinitis.

2. The *secondary atrophy* consequent upon optic neuritis retains for a long time certain special and characteristic peculiarities, which generally enable us to distinguish it easily from the last form. In the early stage there is still some swelling of the disc, and the latter has a dull, opaque, greyish-white appearance; it, moreover, seems larger than normal, and its outline is not sharply defined, but irregular and indistinct, passing over gradually into the faintly-clouded retina. Later the choroid also shows atrophic changes round the margin of the disc. The retinal veins for a long time retain a certain degree of dilatation and tortuosity. Sometimes we may follow the atrophic changes in one part of the disc, whilst the other still retains the peculiar characters of neuritis.

According to Mr. Hutchinson and some other observers, a peculiar and characteristic form of atrophy occurs in tobacco amaurosis. In the first, very transitory, stage there is said to be hyperæmia of the disc, which is soon followed by paleness of its outer half; at a later period the disc becomes very pale, even of a blue-milk whiteness, and, finally, markedly atrophic. The size of the retinal vessels is generally not much diminished. Whilst fully recognising the occurrence of tobacco amaurosis, I cannot, from my own experience, accede to the doctrine that it is distinguished by a peculiar form of atrophy of the optic nerve. In many of these cases there had been probably retro-ocular neuritis with central scotoma, the appearances of which at a later stage correspond closely to those just quoted as being supposed to be specially characteristic of atrophy in tobacco amaurosis.

Excavation of the Optic Nerve.

We have now to consider the pathological excavations of the optic nerve. I have already, in a former lecture, described the appearances of the physiological cupping, and need, therefore, only briefly remind you that it is chiefly distinguished from the pathological excavations by the fact that it is more or less confined to the central portion of the disc, whereas both the atrophic and glaucomatous cup occur at the margin.

1. *In the excavation from atrophy of the optic nerve* we notice, in the first place, the symptoms characteristic of atrophy. The disc is of a greyish or blueish-white tint; the arteries are generally small and thread-like, or hardly apparent; the veins may at first retain their normal calibre, but gradually also become diminished in size. On tracing the vessels from the retina on to the disc, we notice that they make a little bend or curve as they pass over its margin, but they do not show any marked displacement; for although the excavation may be extensive on the surface, it is very shallow, the descent being also somewhat gradual and sloping; hence on moving the object lens to and fro, the bottom of the excavation does not move as a whole, and the parallax is but slight.

2. *The glaucomatous or pressure excavation* extends likewise quite to the edge of the disc, its diameter equalling, or, if its cup extends beneath the margin, even exceeding, that of the latter, the lamina cribrosa being stretched and pushed back. The excavation, therefore, reaches below the level of the retina and choroid into the sclerotic canal of the nerve. Even although the cup may not yet have attained any considerable depth, its edge is always abrupt and precipitous, and if it has undermined the margin of the disc, its edges overhang the excavation. The disc is generally surrounded by a light yellowish-grey ring (resembling the crescent in sclerectasia posterior), which is due to the reflection of light from the scleral ring, the choroid being atrophied and greatly thinned at this point. At first this zone is only partial; but as the disease advances it gradually encircles the disc, increasing in width with the depth of the excavation. In the vicinity of this zone there may be small patches of atrophied choroid. The color of the disc is much changed, its brightly shining stippled centre being surrounded by a deep bluish-grey or greenish shadow, which increases towards the periphery to a dark rim. This appearance is due to the fact that the light falls perpendicularly upon the central part of the cup, and hence this reflects more light than the peripheral portions, upon which the light falls obliquely. On account of this peculiar shading, the disc looks as if it were rather arched forward than hollowed out. The course of the retinal vessels at the edge of the disc is also very peculiar; for if we trace them up from the retina, we find, when they arrive at the margin of the excavation, that the dilated veins increase somewhat in size and darkness, and, making a more or less abrupt curve, descend into the cup. If the latter is deep, the veins seem to curl round over its edge and are considerably displaced, so that their prolongations on the disc may deviate so considerably from their trunks at the retinal edge of the cup as to appear not to belong to the same vessel. In the disc the vessels look indistinct, faded, and much diminished in size, sometimes even completely disappearing. On moving the object lens from side to side a very marked parallax is noticed; for the whole bottom of the excavation shifts its position, and the broad scleral zone seems to move over it, as if a frame were moved over a picture. The deeper the excavation, the greater is the parallax; the latter is especially well seen with the binocular ophthalmoscope. If a glaucomatous excavation supervenes upon a physiological one, we may at the outset observe the two coexisting, so that the vessels show a double displacement, one at the margin of the disc and another nearer its centre; but at a later stage the physiological cup becomes merged in the glaucomatous. At the commencement the glaucomatous excavation may be partial; but even then this portion shows already the typical symptoms of the pressure excavation.

The retinal veins are often very dilated in glaucoma, and assume a markedly tortuous and corkscrewy appearance; if the stasis is very great, they may even show bead-like swellings. There is generally also spontaneous or easily producible pulsation in the retinal artery on the disc.

Pigmentation of the Optic Nerve.

It has been already stated that more or less considerable deposits of pigment are often observed at the edge of the disc in perfectly healthy eyes. But in rare instances pigment is deposited on the expanse of the disc, perhaps even occupying the greater part of it. As these cases appear always to occur after accidents, it is probable that a hæmorrhagic effusion had taken place within the sheath of the nerve, and had afterwards undergone pigment degeneration.

Opaque Optic Nerve Fibres.

This physiological peculiarity may easily be mistaken for an exudation into the retina, if attention is not paid to certain marked differences which distinguish the two conditions. In the human subject the nerve-tubules lose their medullary sheath at the cribriform tissue, and pass on to the most anterior portion of the papilla, and thence to the retina, denuded of their sheath—i.e., as plain axis cylinders. But in certain animals—rabbits, for instance—the sheath is continued on to the retina, and the same thing occasionally occurs in the human subject, and gives rise to a very peculiar appearance of the fundus. The disc is then not sharply defined and surrounded by transparent retina, but at certain points we notice peculiar white, striated, tongue-like projections, which extend from the disc on to the retina, terminating in an irregular manner, their outline showing feathery striæ. Particular attention must be paid to the fact that the retina in the immediate vicinity of these white patches is perfectly transparent and healthy, for in exudations into the retina the contiguous portions always show a certain degree of opacity. The vessels may be partially or completely hidden in these patches, reappearing at their periphery, and being thence distributed in a normal manner. The opacities vary much in size and number; in some cases there may be only two or three small ones, in oth [illegible] greater part, or even the whole, of the disc [illegible] surrounded by a large white patch. It is much interest that the little white patches, due to the presence of the medullary sheath, may show themselves at some distance from the disc, the intervening nerve-fibres being transparent. Recklingshausen has verified this fact by dissections (*vide* Virchow's Archiv, vol. x., 1864). It is of consequence to remember the following points with regard to the diagnosis of the opaque optic nerve fibres:—1. The optic disc is quite normal in tint and transparency. 2. The opacities terminate abruptly by fine striæ in perfectly healthy and transparent retina. 3. The retinal vessels are likewise quite normal.

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Clinical Lecture

ON THE

CHOICE OF OPERATIONS AT ALL AGES FOR STONE IN THE BLADDER,

FOUNDED ON TWELVE CASES RECENTLY IN THE WARDS.

By Sir Henry Thompson,

Surgeon Extraordinary to His Majesty the King of the Belgians,
Surgeon and Professor of Clinical Surgery to
University College Hospital, etc.

Gentlemen,—Since last we discussed the subject of stone in the bladder here, but a few months ago, a series of twelve cases of that disease, at various ages, have passed through my wards. As these offer admirable material for a consideration of the different phases in which this disease is presented, I think I cannot do better than utilise it for you to the best of my ability on the present occasion. These twelve cases have embraced cases at all ages and of all kinds. I shall classify them on the board as follows:—

Lithotomy.	*Lithotrity.*
Under 2 years.	2¼ years.
Aged 16 ,,	23 ,,
65 ,,	48 ,,
65 ,,	51 ,,
	54 ,,
	60 ,,
	65 ,,
	72 ,,

Four were treated by lithotomy, including one of the children. Eight were treated by lithotrity, also including one of the children, an exceptional circumstance, to which I shall have to call your particular attention hereafter, and I am very pleased to add that every one of the twelve was discharged cured.

I think that the first question which will naturally arise in your minds will be—On what system was the selection of these cases made for the two operations? Why were those particular four cut, and those other eight crushed? Are there any principles to guide the decision to cut or to crush in all cases of stone? Such a question I take to be a most pertinent one, and on the ability with which it is practically answered by the surgeon will, I believe, depend much of his success in operating. I have often had occasion to remind you that by erring in the selection of cases for the two operations of cutting and crushing respectively, we may actually become less successful operators than if we employed, as in old time, the cutting operation for every case of stone, small or great, young or old, which presents itself to us. It is mainly by a judicious selection of cases for the two proceedings respectively that we can gain the advantages which the modern mode of crushing the stone places within our power. I am quite satisfied, for example, that had I cut every one of those twelve individuals, I should have had a death, perhaps two. I am equally satisfied that had I crushed every one, I should have had one death, probably two. The fact, then, that I had none is due, other things apart, to the adaptation of the operation to the case.

My aim, then, to-day is chiefly to answer for you the following question: "How do you select for each operation, respectively, the cases best adapted to each method."

I reply, it is essential, in order to form a judgment, that you must previously become acquainted with the following particulars:—1. The size of the stone; or the amount of calculous matter, if multiple. 2. Its composition. 3. The age and constitution of the patient. 4. The conditions of the local organs.

First, the size of the stone. This is the most important feature, taken alone; and the earliest examination of a case should inform us accurately on this head. For if a stone is small, it is almost certain to be successfully disposed of by lithotrity, and if it is very large it will certainly be incurring a considerable risk to depend on the lithotrite for its removal. Were the alternatives always so complete as this, there would be no difficulty in determining the question at issue; but, as you well know, there are stones of all sizes between these two extremes, and many exist on the border-ground, so to speak, of size, for which other circumstances than that of magnitude may influence a decision in the case. To speak approximatively, however, in the matter of size, I think I may fairly say that a stone which measures 1¼ in. to 1⅜ in. in its longest diameter is for the most part fairly amenable to lithotrity. A stone of which any measurement is 1½ in. is mostly too large.

But how, it may be said, do you determine these measurements? You who accompany me round the wards know that, at my first or second visit to any case of stone, this quality of size is easily ascertained by means of a flat-bladed lithotrite. I catch the stone first in one diameter and then in another, and the distance between the two blades is easily read off at the handle. There are other and subordinate ways—such as with the sound itself;—but none are so certain or so accurate as this, and it should always be employed. At the same time, you determine whether other stones exist besides that which lies within the grasp of your blades, by feeling for them while still grasping the stone already caught.

But you want, secondly, to know the nature and composition of the stone. This is really scarcely less essential to know than its size. Remembering, then, that three-fifths of all stones, speaking roughly, are composed of uric acid and the urates, the other two-fifths phosphatic or mixed, and only now and then an oxalate of lime is met with, you will be prepared to expect a uric-acid stone if no circumstance contraindicates its presence. But, further, if in an ordinary healthy man of from fifty to seventy years you find a hard stone, it is 7 to 1 that the stone is composed of some form of uric acid, pure or with a base; but if he is a strong, hale, hearty man of that age, and his urine is clear, it is 15 to 1 that the calculus belongs to this class. An oxalate-of-lime stone is more likely to be found at an earlier period of life, and the man has probably a less healthy appearance. If the stone be phosphatic, the patient is often broken in health, and the urine mixed with mucus, pus, phosphates, and a little blood. Next, there is the evidence to be derived from the "feel" of the stone by the sound, and the note which it utters when you give it a short, sharp tap. With uric acid and oxalate of lime the note is clear, and on drawing the beak of the sound along it a firm hard surface is felt. But this is by no means decisive: you must feel your stone in the jaws of the lithotrite, and this will tell you more. The "feel" of an oxalate-of-lime calculus is wholly different from that of uric acid. I grant that this is appreciable rather to the practised hand than to that of the tyro, still I can describe perfectly what I mean. Suppose you have a good-sized uric acid stone in the blades of your lithotrite; on turning the screw a little, and gently, you can easily feel the blades "bite"—that is, sink a little into the crust of the hard body; but if you have an oxalate-of-lime calculus in the blades, on screwing you make no impression, the stem of the male blade recoils with a spring, there is no "bite;" it is as though you had a piece of unyielding metal between the blades, not like a bit of some friable rock, which the other more resembles. On the other hand, a phosphatic stone gives a soft, uncertain sound when struck with an instrument, and the sensation of a rough, gritty body to it when drawing along its surface the beak of the sound; and the "feel" in the blades is also soft, gritty, and yielding. Indeed, with a little attention to these matters, and to the state of the urine, there is little or no difficulty in ascertaining the nature of a stone. It is quite true that in a few exceptional cases you may have a uric-acid stone, or an oxalate-of-lime stone coated thickly with phosphates, and that you may be deceived thus; but these are rare instances, and by no means necessarily interfere much practically with the object we have in view—viz., the determination of the nature of the stone before operating. Thus, a sitting or two by lithotrity will soon remove the phosphatic crust, and a hard, unyielding mass of oxalate of lime may be arrived at, which must be extracted by lithotomy unless it be small.

Thus far we have considered under two heads the character of the stone itself. We will now study the questions as affected by the condition of the patient in regard of age and constitution. First, then, as a rule, to which there are very few exceptions, no proceeding is so perfect for all cases below puberty as lithotomy. In the series before us, however, one of these exceptions has fortunately occurred, which I shall refer to hereafter. The best information we have enables us to say that the deaths are not more from lithotomy than one in fifteen cases below the period of puberty, and in infancy they are still fewer. All these are consequently so far disposed of. For adults only, therefore the question of choice remains. I may say, then, that *for a small stone, whatever the age*, without any hesitation, lithotrity is the operation. I have to repeat that I have never yet lost a case of small stone by lithotrity. I mean by "small" the size of a bean or small nut—removable, say, at two easy sittings. This is a fact of the utmost importance, and the practical value of which it is impossible to overrate. Every stone ought to be detected by the time it arrives at the size indicated; and, this being so, it is possible to remove it with a certainty of success and without risk to the patient's life.

Thus far no difficulty exists in our choice. But it is when we come to stones of an inch and upwards in diameter that other circumstances demand consideration. It is here that we look for other lights to guide us in our decision. Now I must remind you that in former time it was usual to admit that several conditions existed which were very unfavorable to lithotrity, and which, it was held, should incline the operator to prefer lithotomy. Among these, the strong tendency to rigors after almost any instrumental interference, supposed to depend on some derangement of the kidneys, was regarded as strongly contra-indicating the crushing operation. Now I think we may say it is very doubtful whether the phenomena so referred to are to be regarded as putting aside lithotrity altogether. I have of late given much consideration to this subject of "urethral fever," as it has been termed, although I have not time to say much about it now. I have long observed, in common with others, the strong tendency which exists in some persons to manifest constitutional disturbance after even very slight mechanical interference with the bladder and urethra. It has been the habit to say, and I have often said it, that this tendency, when strongly marked, indicates perhaps the existence of some degree of mischief in the kidneys. I confess I doubt this. I have yet to learn that this tendency is necessarily or even often associated with renal disease. It is true that if disease of those organs exist, dangerous fever is apt to arise from an operation of lithotrity, or from any slight mechanical interference. But that a very strong tendency to the occurrence of what has been termed "urethral fever" does exist in many who have no sign of renal disease is to me equally certain. Understand that I mean by this "fever" not ordinary surgical fever, nor pyæmia, and of course not any specific fever, as typhoid &c., but an occurrence of the following phenomena: Within a varying period of time after the use of an instrument, it may be after the first micturition, or after twenty-four or forty-eight or even seventy-two hours, the interval being often one of apparently perfect health, the patient is attacked with rigors, followed by dry heat, then sweating, often with much pain in the back, limbs, and head, and considerable depression of the vital powers, the urine being scanty and concentrated. This paroxysm has sometimes a tendency to recur, and is uninfluenced in this respect, as far as I can judge, by quinine. The occurrence of these events appears to me to be more an affair of constitution or temperament than of the presence or absence of renal disease. These symptoms appear readily among certain excitable or sensitive people, and I think I am right in saying they are more common among patients who are of Celtic than of Anglo-Saxon origin, using these terms in the broad general sense in which they have of late been usually understood. I say this advisedly, after a good deal of experience of patients among the two races, and I am quite satisfied that when I have to do with one of marked Celtic type I am likely to meet with the phenomena described after the most delicate mechanical interference. Such bear pain badly too, dread an instrument excessively, are impatient of control, and lose vital power rapidly under the influence of continued slight irritations. People with this constitution, whatever their nationality, do not well bear numerous sittings, nor the trouble of passing fragments, are apt to lose pluck and hope, and will be exhausted by pain and loss of rest before the numerous sittings essential for a rather large stone can be accomplished. I think, then, that this excitable temperament, this disposition to the fever I have spoken of, are the most unpromising conditions we can encounter in a patient with such a stone, so far as lithotrity is considered. And I cannot promise you that lithotomy is much better suited to them; more observation is necessary; but I am inclined to believe that when you are so unfortunate as to meet with a large stone in one of these people, you had better cut than crush. It is to be remarked, however, that it is always some one's fault if such a patient is met with having a large stone. He is sensitive, soon complains, and his stone ought to be found when it is small. There is little excuse for missing it. These patients are easily identified, not merely by the general evidences of excitability which they readily manifest, but by the tendency to rigor after the mere preliminary sounding.

Next, we have to consider the condition of the urinary organs in aiding us to determine the choice of operations. In both operations a healthy condition, or nearly so, of these organs is of course more favorable than the contrary. What are the deviations from health most commonly met with in adult calculous patients? 1. Chronic cystitis. 2. Enlargement of the prostate. 3. Inability of the bladder to empty itself at the act of micturition. 4. Stricture of the urethra. 5. Pyelitis and renal disease.

1. Chronic cystitis is by no means always present; but, when it is, the removal of the stone mostly, not always, suffices to effect its cure. When this result does not follow the operation, the bladder probably does not empty itself. (To be considered under No. 3.) Only when very severe and of long standing is chronic cystitis to be considered in connexion with our special object of inquiry.

2. Enlargement of the prostate rarely opposes any obstacle to lithotrity. In some of the most favorable cases I have had, and with the largest stones to which I have ventured to apply lithotrity, this condition has been present in a marked degree. The form of the lithotrite is particularly well adapted to enter the bladder easily when there is much enlargement of the prostate. There is not necessarily engorgement of the bladder and retention of urine, although often it is associated with—

3. Inability of the bladder to empty itself by the natural efforts. With this there is often associated more or less of chronic cystitis. If a patient passes a part of his urine, still more if he passes the whole of it, by catheter, troubles of a grave kind *may* arise in lithotrity, although this by no means necessarily happens. Those who are accustomed to daily catheterism bear instruments, and consequently lithotrity, remarkably well; and not only that, but they bear the withdrawal of the débris—a proceeding essentially necessary in these cases, since it cannot be passed by the patient's efforts. If the stone, then, is not large, and the cystitis is but slight, no difficulty need be apprehended. But if the bladder is irritable, the patient requiring to use his catheter frequently, lithotrity, and the presence of fragments, will increase the irritation; and he will require the catheter at such short intervals that his rest is greatly broken, the urethra becomes very tender, and he runs the risk of making false passages, or at any rate injuring the canal, perhaps loses power to pass his instrument properly, and his position is then one of extreme danger. A patient, therefore, who requires very frequent catheterism, whose urine is loaded with thick organic deposit, and whose stone is above an inch in diameter, as a rule, to which there are exceptions, had perhaps better be cut. If the stone can be removed at two, or at most three sittings, no doubt lithotrity would be the safer operation. If six or seven should be requisite, perhaps lithotomy will afford him a better chance.

4. Stricture of the urethra is by no means an obstacle unless the stone is rather large. The method of meeting the difficulty will be mentioned in remarking on one of the cases.

5. Renal disease and pyelitis are unfavorable conditions for either operation. When the stone is small, lithotrity ought to be held responsible, and I accept the onus of removing such by crushing, although great care is necessary. The intervals between the sittings must be long, and the patient must be very carefully tended and watched.

Now for a few words touching the mode of lithotomy employed. All those in our list have been operated on by the lateral method. A few years ago you know the median operation for a time came into favor, or, more correctly speaking perhaps, an extended trial was accorded to it by many surgeons in this country, myself among them. Confessedly, however, even on the part of its advocates, it was not considered adequate to the removal of large stones; and as meantime lithotrity has been advancing, and has become more and more extensively applicable, the want of an operation for small and middle-sized stones has disappeared. The only cutting method which, as a rule, is necessary now is one by which we can most safely and easily extract stones of rather large size, almost all beneath these being amenable to lithotrity. For this purpose lateral lithotomy is, doubtless, preferable, and, excepting only for some unusually large calculus, to which a high operation may be better suited, is almost invariably applicable both to adults and children. Hence I have applied it to each of these four cases of two years, sixteen years, and two of sixty-five years with unexceptionable results in every case. The only drawback was in one in which, owing to various circumstances, a slight degree of sloughing took place between the wound and the rectum in the second week after the operation. This was a case in which there was much deformity from anchylosed hip; in it there was much hæmorrhage, and a tube had to be introduced, with tight plugging round, to arrest the bleeding; and the stone in this case weighed nearly three ounces. When the patient left the hospital but a few drops of urine passed by the rectum, and the quantity was steadily diminishing. In the other cases no tube was employed; indeed now, unless bleeding takes place, in which case I use a "petticoated" one, well stuffed with lint, I have discarded this instrument altogether. I think its presence hinders the healing process, and often causes unnecessary and additional irritation of the bladder.

I shall now remark very briefly upon some of the cases upon the list before you.

Take the two children first—one less than two years, with a big stone; the other rather more than two years and a half, with a small one. About the first there could be no question; the stone of that small child was an inch long; the tissues, as they naturally must be, were so soft and yielding that I took the precaution of retaining the staff in the bladder until I had seized the stone, thus "keeping up my communication with the base of operations," as a military man might say. Nothing could answer better. But the other child had a stone no bigger than an orange pip, and I crushed and removed it entirely with four introductions of the lithotrite; and here, too, not a bad symptom followed. But mark one essential difference between these two cases: one child has a large wound across very important parts; the other has none. Who shall say in that former case what is divided and what is not? The little prostate of such a baby is much more than cut through completely; but what of the seminal ducts, &c.? I have often thought I should like to know the subsequent condition in adult life of twenty patients cut for stone in infancy; and to ascertain what, if any, injurious effects resulted to those organs recognisable at that period of life. There is a subject for some of you to follow out. At all events, whatever it might be, the other little patient was saved such a risk.

Among the lithotrity cases I shall refer to the man with tight stricture. He had been cut eight years before, and he was about as feeble and unpromising a subject as one could meet with. Nevertheless I accepted the risk of his case, for lithotrity. His stone was phosphatic, and of moderate size. I dealt with him thus:—I tied in a gum-elastic catheter, about No. 4, exchanging it for a larger one, and so arriving at about No. 10 in a few days; put him under chloroform, and introduced a small lithotrite, crushing and removing as much as I could. After a day or two's rest the process was reapplied, and repeated some three or four times, when the whole was successfully removed.

The case with renal disease cost a great deal of time and trouble. Three or four weeks elapsed between each operation, so much of the convalescing process had to be pursued after each sitting in order to ensure a fund of strength on which to draw for the next; for he was much depressed by fever after each. Happily we had the satisfaction of dismissing him in excellent condition—far better than I ever expected to see him.

The last case I shall particularise is that of a man aged seventy-two years, who was relieved of a large quantity of uric-acid stone in eighteen sittings. There were at least two or three calculi. On the whole it was rather too much for lithotrity; still I hesitated about the risk of lithotomy, for it is a great risk between seventy and eighty, and I accepted him rather reluctantly for the crushing operation. No doubt if you have, say, an ounce of uric-acid calculus in the bladder, it is much safer to deal with when existing in the shape of three or more stones than as one large one. Nothing could go better throughout the whole series until the last or eighteenth sitting, after which he had inflammation of the deep veins of one leg, with enormous swelling, induced no doubt by the passage of exudation matter from an inflamed vesical vein to the femoral. From all this he slowly rallied, and was dismissed cured; and he called upon us only last week, in excellent health, to show how his leg was rapidly diminishing in size, supported as it is by an elastic stocking which we gave him. Of calculous symptoms now he has not the slightest trace.

Here I must stop; but let me sum up all in nearly one word—namely, that three-fourths of what is spoken of as "difficulties in lithotomy" or "in lithotrity" would be resolved, in fact would almost cease to be among the "difficulties," were only an accurate diagnosis formed in every case of stone before deciding on the operation to be performed.

Clinical Lecture

ON A

PECULIAR FORM OF WRIST-DROP

FROM

PARALYSIS OF THE MUSCULO-SPIRAL NERVE IN FRACTURES OF THE HUMERUS.

Delivered at the University College Hospital.

By Professor Erichsen,

Senior Surgeon to the Hospital, and Holme Professor of Clinical Surgery.

Gentlemen,—Simple fractures of the long bones are seldom accompanied by any serious complications; the vessels and nerves of the limbs being so situated, and being so well protected by the interposition of a layer of muscle between them and the bones, as to escape being injured, in the vast majority of cases, by the ends of the fractured fragments. There are, however, two exceptions to this general rule: one in the upper, the other in the lower, extremity. In the upper extremity, in the relation of the musculo-spiral nerve to the shaft of the humerus; in the lower, in the position of the posterior tibial artery in reference to the upper end of the tibia. In both these instances the position of the nerve and of the vessel is such that it may be seriously injured by fracture of the contiguous long bone.

It is not my intention to-day to speak of the injuries that the posterior tibial artery may sustain in and from simple fractures of the bones of the leg; but I shall confine my observations wholly to lesions of the musculo-spiral nerve from fractures of the humerus.

The complication of an injury of the musculo-spiral nerve, in a case of simple fracture of the humerus, must certainly be of rare occurrence, as I find no mention made of it in the standard works on surgery that I have had an opportunity of consulting, and I do not recollect to have met with this accident until recently. We have, however, had lately three cases under our care here, in which, in consequence of injury to the musculo-spiral nerve or one of its branches, more or less complete paralysis of the muscles supplied by that nerve has resulted. These cases I will presently relate to you, and on them I will found the observations I have to make on this interesting subject.

When we observe the manner in which the musculo-spiral nerve winds closely round the back of the shaft of the humerus in its flattened groove, and how in its course downwards towards the forearm it comes into tolerably close relations to the outer condyle, we can easily understand how in fractures of the shaft the main trunk may be implicated, and in those of the condyle one or other of its chief divisions injured.

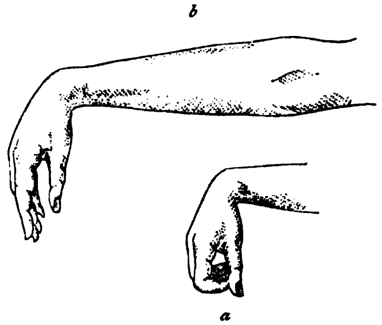
When the main trunk of the musculo-spiral nerve is injured to such an extent as to induce complete paralysis of it, both the supinators of the forearm and all the extensors of the wrist and fingers lose their power, and the patient becomes utterly incapable of performing those movements that are dependent on the action of these muscles. The hand consequently falls into a state of pronation and flexion presenting the characteristic signs of "wrist-drop."

When the posterior interosseous division of the musculo-spiral is the nerve that is injured, the loss of supination and of extension is not so complete. The supinator longus and extensor carpi radialis longior, being supplied by branches from the main trunk, are not paralysed, and thus a certain though very limited movement in the sense of supination and extension is preserved, although the forearm and hand fall naturally into a state of pronation and flexion.

These different conditions were well illustrated in the following three cases, which I will relate to you in the order of their degrees of extent and severity, so far as regards the paralysis of the various sets of muscles. An attentive study of the movements of the wrist, hand, and fingers in these cases throws a clear light on the actions of the muscles supplied by the musculo-spiral nerve and its branches, and some of the other nerves of the forearm and hand.

CASE 1. *Fracture of Shaft of Humerus; paralysis of trunk of musculo-spiral nerve, and complete loss of extension of the wrist, fingers, and thumb; loss, nearly complete, of supination.*—E. L——, aged twenty-nine, by occupation an ironer, admitted Dec. 16th. Ten weeks since the patient fell and fractured her humerus about the middle. She was treated as an out-patient, and the limb put upon an angular splint, so as to fix the elbow-joint. When the splint was left off, at the end of four weeks, she was directed not to use her arm for a week. She noticed wrist-drop when she left off the splint, but thought it was mere weakness. At the end of a week, however, on trying to use her hand, she found that she had no power in the wrist or fingers. It was thought to be weakness, and she bathed it with cold water. The hand has for some time felt much colder than the other. On examination, it is found that there is marked wrist-drop, with pronation. She cannot extend the hand at all. The right forearm, hand, and fingers are swollen. She feels a difference in the temperature of the two hands, but not so great as formerly. Occasionally she has a feeling of pins and needles all down the hand and fingers. The thumb and index-finger are numb on the dorsal aspect, especially the former. Sensation over them is imperfect. Flexion of the fingers is imperfect owing to stiffness of the knuckles. The temperature of the affected hand does not raise the index of clinical thermometer to 85°; that of the other is 90·6°. All the muscles supplied by the musculo-spiral nerve are paralysed completely. She has consequently totally lost all power of extending the wrist. She has no power of extending the thumb. She has no power of extending the fingers from the metacarpo-phalangeal joints; but when the fingers are completely flexed she can extend the joints between the first and second and second and third phalanges. This is evidently accomplished by means of the interossei and lumbricales, which are attached to the expansion of the extensor tendons on the dorsum of the fingers lower down than the metacarpo-phalangeal joints. On holding the index-finger forcibly down, and telling her to try to extend it, the thumb is drawn in towards the palm by the attachment of the first dorsal interosseous to the metacarpal bone of the thumb. Supination can be performed apparently in a very feeble and imperfect manner, but only when the forearm is flexed. Flexion of wrist, hand, and fingers is perfect.

FIG. 1.



Since this report she has been galvanised by faradisation regularly, and has regained considerable power in all the affected muscles, so that she can now extend the wrist and the fingers from their metacarpo-phalangeal articulations.

There are several points in this case that deserve special attention. That the trunk of the musculo-spiral nerve was paralysed by being implicated in the fracture which occurred in that part of the humerus round which it winds, there can be no doubt. All the muscles connected with the hand and wrist that are supplied by both of the terminal divisions of that nerve—the radial and the posterior interosseous—were paralysed, and none other were affected.

Now let us examine a little more in detail the conditions of the hand and fingers. The wrist-joint was flexed, so that the hand hung listless and inactive, at nearly right angles with the forearm. (Fig. 1, *b*.) It could not be raised or extended in the slightest degree. No effort that the patient made in this direction was of any avail. There was, consequently, complete paralysis of the two extensors of the wrist—the long and the short. The hand was prone; complete supination was impracticable, and no movement whatever in that direction could take place when the forearm was extended on the arm. But when the forearm was flexed, a slight supine movement could be made by the patient. To what was this due? Clearly not to the supinators, which would have acted equally well whatever the position of the elbow might have been. But apparently the slight effort at supination, for it was really nothing more, was the result of contraction of the biceps, which, as you are aware, when called into action whilst the hand is prone, has for its first effect a tendency to supinate the forearm and hand. There was, consequently, complete paralysis of the two true supinators—the long and the short. Thus there must have been loss of innervation in both the terminal branches of the musculo-spiral—the radial and the posterior interosseous. The long extensor of the fingers was paralysed, so that when they hung at right angles with the hand, they could not possibly be extended from the metacarpo-phalangeal articulations so as to be brought to a level with the dorsum of the hand. But there was one movement of extension still left to the fingers, and it was this—that when they were bent or drawn into the palm of the hand (Fig. 1, *a*), the last two phalanges could be extended, and with some little force, from the articulations between the first and second phalanges. Fig. 1 shows at *a* the fingers flexed, and at *b* extended from the first phalanges. Now this is an extremely interesting point, and one to which I would direct your close attention. To what is this upward or extending movement of the two terminal phalanges due?—a movement that takes place independently of the action of the true extensors of the fingers. It is due to the combined action of the interossei and lumbricales—muscles that do not receive their innervation from the musculo-spiral, but chiefly from the deep branch of the ulnar; all the interossei and the two innermost lumbricales receiving their nerves from this source, whilst the two outermost of the lumbricales obtain theirs from the median. Thus these accessary muscles of extension, receiving their nervous supply from sources that were uninjured, continued in the free exercise of their special actions. The thumb was drawn in towards the palm, and could not be abducted owing to the paralysis of the extensor muscle of the metacarpal bone. The numbness and referred sensations occupied those portions of integument that were supplied by the terminal branches of the radial nerve. The temperature of the hand was considerably lower than the other. It was below the lowest mark (85° F.) on the clinical thermometer; and as that of the sound hand was 90·6°, there must have been a difference of at least 5° to 6° F. between the two limbs.

The next case that I will relate to you is one in which the paralysis seems to have been limited to the posterior interosseous nerve. It is as follows:—

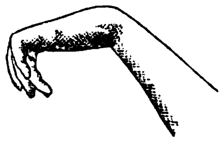
CASE 2. *Wrist-drop following Compound Fracture of the External Condyle of the Humerus; paralysis confined to the muscles supplied by the posterior interosseous nerve.*—H. E——, aged thirty, by occupation a lace-cleaner, on the 16th of November slipped down on her right elbow on the pavement, and afterwards came to the hospital. On examining the elbow, much mobility and crepitus were found, and a fracture of both condyles, with separation, could be clearly made out. At the back of the arm, about an inch above the elbow, was a wound which would take the tip of the little finger, clean cut without bruising of the edges, apparently done by protrusion of bone at the time of the fall. A probe could pass in different directions readily among the tissues. From Nov. 17th till Dec. 21st the limb was kept on an angular splint at the inner side, and the wound treated in strict accordance with Lister's rules for antiseptic dressing. On Nov. 24th (eighth day) there was much swelling, with some redness and tension, about the joint and upper half of the forearm. It was thought that fluctuation existed; and an incision, about three-quarters of an inch long, was made a little below the elbow. Much serous fluid came, but no pus. Large quantities of serous fluid continued to come from the wound for a fortnight afterwards. The tension rapidly disappeared; no pus was at any time observed. Passive motion was commenced on Dec. 21st. The splint was left off on Dec. 23rd. There was much stiffness of the joint.

Jan. 23rd.—Patient can bend the elbow to an angle of 45°; can straighten to about a right angle and a half. Can close the hand as far as to bring the tips of the fingers to about an inch from the palm; her hand can be made to close completely without much difficulty. There is perfect flexing and opposing power in the thumb. When the hand and forearm are supinated the wrist is quite straight. Cannot completely straighten the hand at the metacarpo-phalangeal joint. Very slight force brings these joints straight; but she cannot extend the fingers. When the hand and forearm are pronated there is a complete drop of the wrist. Cannot raise wrist or fingers. Cannot move the thumb outwards or backwards (through loss of power of the extensor). There is almost perfect power of supination when the elbow is fixed. When the fingers are completely flexed, she is able to extend the joints between the second and third and first and second phalanges, by means of the lumbricales and interossei. When doing so, as the hand is very thin, the interossei can be seen working. There is slight numbness on the back of the thumb and index finger, but no absolute loss of sensation.

Now this case closely resembled the last in all respects, with the sole exception of the paralysis of the hand and arm not being so complete. The general aspect of the limb was the same. The pronation and flexion of the forearm and wrist were marked; but the power of supination was not completely lost—in fact, existed to a considerable degree, but was not perfect. So also with regard to extension of the hand from the wrist. The knuckles could be brought up nearly to their proper level. Now this imperfect power of supination and of extension of the hand was doubtless due to the supinator longus and extensor carpi radialis longior—muscles supplied by the radial nerve—retaining their power, and thus being able to act; whilst the short supinator and the short extensor of the wrist, both supplied by the posterior interosseous nerve, were completely paralysed. Hence the imperfection of the supination and extension that existed. There was further proof of the fact of the radial nerve having continued to maintain its action in the fact that sensation was not lost in its terminal cutaneous branches. The temperature of the hand also had not fallen, as in the first case.

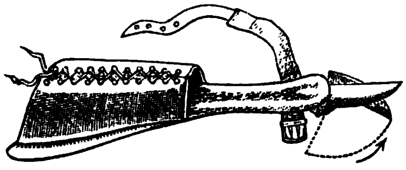
CASE 3. *Fracture of Lower Epiphysis of Humerus; wrist-drop from paralysis of posterior interosseous nerve; tonic contraction of flexors.*—M. M——, aged seven, was admitted as an out-patient under Mr. Heath, and by him transferred to Mr. Erichsen. In June, 1870, she fell over a croquet hoop, and the lower part of the right humerus was fractured. The arm was at first supposed by her friends to be dislocated, and a non-medical gentleman who was present pulled violently at it for some time, but, as he did no good, she was taken to a medical man. Splints were used for some seven weeks; they reached to the tips of the fingers, which were kept extended. When the splints were left off the fingers became flexed at once. Her parents think they were more so than now. She can crochet with the right hand, and can write, but badly; she has been learning to write with her left hand in consequence. She has very marked wrist-drop; she can, however, extend her wrist. Her hand is pronated, and can only be imperfectly supinated. The fingers are flexed and drawn into the palm of the hand. (Fig. 2.) On the wrist being dropped, the last two phalanges of the fingers can be imperfectly extended by the patient. On the wrist being straightened, the fingers become flexed, and cannot be extended actively or passively. On forcibly extending the fingers and wrist, there is no tension of the palmar fascia, but there is great tension of the flexor tendons above the wrist. The hand is congested and cold. The arm is distinctly smaller than the other. The temperature of the right palm is not high enough to move the index of the thermometer—so that it is below 85°, that of the left being 93·6°. The sensibility of the hands was tested by the compasses; it seems quite as acute in the right as the left. There is some irregularity of the lower end of the outer condyle, which seems to have been the situation of the fracture, or separation of the epiphysis, which was the original injury.

FIG. 2.



Dec. 19th.—Mr. Erichsen ordered a splint to be specially constructed so as to permit of gradual extension of fingers by means of a movable hand-piece worked by a rack and pinion. (Fig. 3.)

FIG. 3.



Jan. 4th, 1871.—Mr. Erichsen ordered her arm to be faradised daily. There was at first scarcely any contractility perceptible in the extensors.

9th.—The splint has been applied, and the arm has been galvanised daily. The contractility of the extensors and supinators has markedly increased.

23rd.—The fingers have become sore from the pressure of the instrument. The index finger is but little improved. The middle finger is better, and the little and ring fingers are very greatly so, being now almost straight. The wrist can be extended perfectly, so that the knuckles can be brought to a level with the back of the forearm. When so extended, the fingers are half bent. But when the wrist is dropped they can be extended by the patient. In doing this they always involuntarily spread out in a fan-shape, owing to the action of the dorsal interossei.

It would appear that the chief resistance to proper extension was due to the contraction of the flexor carpi radialis and the flexor tendon of the index finger, both of which are very tense. Mr. Erichsen proposed to divide these subcutaneously; but the child's friends would not give their consent, and the patient was subsequently discharged from the hospital.

In this case, also, we had the partial loss of supination and of extension dependent on paralysis of the posterior interosseous nerve; whilst those movements that were due to the interossei and lumbricales were perfect. The contraction of the flexors, which had become very marked, was apparently due to the loss of action of their antagonist muscles. It was most marked in the flexors towards the radial aspect of the forearm, and was also associated with a tonic pronation of the limb. The muscles thus injuriously affecting its movement had apparently undergone some rigid atrophy; and I regret that the child's friends would not allow tenotomy, as it offered a good prospect of cure. The fall in the temperature of the hand was very marked. It amounted to at least 8½° F., and how much more it was impossible to say, owing to the marking of the thermometer not admitting of a wider range being noted. But the difference between the two hands in this respect was most obvious and very sensible to the touch. This great fall in the temperature of the hand is very remarkable when we reflect that it was due to paralysis of a branch of the musculo-spiral which is not directly distributed to the hand; whilst the other nerves of the hand—the median and ulnar and cutaneous branch—were intact, and gave no evidence of paralysis. The movements of the muscles of the hand itself, and the sensibility of the skin covering it, were normal.

Original Papers.

ON THE ORIGIN OF CANCER.

By CAMPBELL DE MORGAN, F.R.S.,

Surgeon to the Middlesex Hospital.

WHAT is the origin of Cancer? Does the disease consist solely in a local change of structure; or is it the local determination of a general morbid condition of the blood; or are the blood and the tissue equally interested in its formation?

Few questions in pathology are of greater interest and importance. On the answer we are prepared to give to them depends the practice we should be prepared to follow. On their true solution depends the probable success of that practice. It is not until they are correctly answered that we can rationally approach the more important question, Is cancer curable?—and if so, through what channel, and by what agency? There is little doubt that the answer given by the large majority of pathologists would be, that the blood is the primary seat of cancer. There would be, perhaps, less of positiveness, certainly less of unanimity, on this point than there was some years since, when it was universally taught that cancer was essentially a blood disease, manifesting itself in a part, much as an inflamed toe is supposed to come on from a gouty state of the blood. If this is not now so universally held, yet still the majority would maintain that there must be a special condition of the blood antecedent to the appearance of a cancerous growth.

It would be strange if a disease which holds its own with such a terrible grasp, in spite of all efforts to tear it away, were not regarded as having an origin far deeper in the system than a fatty or an adenoid tumour. Its constitutional origin seems to be firmly established by the *commune sensus* of our predecessors, and by the indisputable facts which daily pass under our own eyes, and these facts are strong. The Horatian dictum with regard to the self-assertion of Nature herself will apply to cancer—remove it, cut it or burn it out, but it will spring up again. Such is the general and sad experience of all surgeons. Happily cases do sometimes occur which show that the rule, though general, is by no means universal. Patients from whom cancer has been removed have lived for many years and died of other disease, no trace of cancer having shown itself in the intermediate time. But this, as the believers in the doctrine of blood-poisoning very justly say, is no proof, even in the individual case, since we often find that a patient remains after operation to all appearance absolutely free from the disease, and that, years after perhaps, fresh tumours become developed. Or it may be said, again, that the blood-taint, though originally present, may have become exhausted at the time the tumour was removed.

Then, again, we have evidence that cancer is very often hereditary. Mr. Paget traces hereditary tendency in one out of every four cases; Mr. Sibley, from the cancer records of the Middlesex Hospital, in one in every nine. It is not improbable that the hereditary tendency may be more common still. We get more evidence of it from private than from hospital patients, the latter as a rule knowing less of their remote family history than the former, and our averages are made up largely from hospital records.

Another and a very common event in the history of cancer, and which seems to lend countenance to the view that cancer proceeds from some general cause, is the outburst of tumours in various parts of the body, in any or all tissues; brain, muscle, liver, kidney, bone, lung, heart—all may be found the seat of cancerous deposit, and of necessity, so far as we can judge, in some cases of nearly, if not entirely, simultaneous deposit. But this event is usually of a secondary nature: a single tumour has existed, and probably has existed for some time, before this general outburst of the disease has declared itself. The fact would be startling, and would appear to confirm the opinion of those who hold cancer to be a blood disease, even if it stood alone. If it could be shown that cancer breaks out primarily in this multiple form, without any antecedent solitary deposit, this opinion would be still further strengthened. Such cases are, however, not to be found; or, if they have existed, are so extremely rare that they prove nothing with regard to the causes of the disease.

Evidence of the constitutional nature of the disease has been sought in the assumed fact that cancer is found in families of consumptive tendency. It is, on the other hand, however admitted that cancer and tubercle, though not antagonistic, rarely coexist in the same individual.

Lastly, we have the evidence of the general contamination of the whole system—the wasting, the peculiar cachexia, the disorganisation of the digestive system; and these not, perhaps, always dependent upon the deposit of the disease in vital organs, nor on excessive discharge, but apparently either on some vitiation of the blood and the tissues, or on defective or perverted assimilating power of the stomach. Dr. Fenwick has shown that, in the later stages at least, the mucous membrane of the stomach is diseased.

It is not surprising, then, that surgeons have come to regard cancer as from the first a constitutional or blood disease. Indeed, it is no easy matter to account for all that we observe in cancer without adopting some such view. But, on the other hand, there are many facts which oppose themselves to it, and there are other modes of accounting for some of those characters which most strongly support it. I do not think that the importance of the question is in general so fully realised as it should be. Some, indeed, seem to consider that, practically, the question is not worth discussing. Yet, surely, if cancer be a constitutional disease, we must strive to find some corrective to the constitutional taint. And we should try in that case to determine whether the local disease is the result of some error in the organising or nutrient function of the tissues, or whether it is the actual deposit of some poison previously existing in the blood.* If the former, our aim must be to find out the source of this error; if the latter, to learn the nature of the poison, and to be able to detect it. Then we might have a reasonable hope of being able to do, what has as yet proved beyond our reach—viz., to cure or even to modify cancer by general treatment. But if cancer be, at any period of its existence, a purely local disease, we should hope that by earlier and more complete removal better and more generally permanent results may be obtainable than we can at present boast of.

Admitting fully the difficulties which lie in the way of arriving at a perfectly satisfactory conclusion, and notwithstanding the high authority of those who adhere to the more commonly received opinion, I may state that the more I consider the question, the more do I hold to the view which has been so ably advocated by my late colleauge, Mr. Moore, and which is maintained by many in this country, and by Virchow and many German pathologists. That there may be a constitutional tendency to cancer I fully admit, but that it is in any sense to be regarded as a blood disease seems to me to require stronger evidence than we have yet obtained. I should say that cancer and allied diseases partake more of the nature of parasitic disease than of the results of previous blood-poison. The final destiny of such tumour will depend, not on any special chemical or nutrient element, but on the nature of the growth itself. This seems the view taken by Mr. Huxley. In his presidential address to the Association for the Advancement of Science (1870), he says, speaking of xenogenesis, "It is only in pathology that we find any approximation to true xenogenesis; and it is furnished by the various structures in which, under the influence of certain external conditions, elements of the body which should have developed in due subordination to its general plan, set up for themselves, and apply the nourishment they receive to their own purposes. From such innocent productions as corns and warts there are all gradations to more serious tumours, and in the terrible structures known as cancers, the new growth has acquired powers of reproduction and multiplication, and is only distinguished by form from the parasite worm, the life of which is neither more nor less closely bound up with that of the infested organism."

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* "For the present I will only say that I think malignant tumours are local manifestations of some specific morbid states of the blood, and that in them are incorporated peculiar morbid materials, which accumulate in the blood, and which their growth may tend to increase."—Paget, Lectures on Pathology, p. 388.

To a certain extent—to a great extent indeed—I admit a constitutional tendency to this disease; but I admit equally a constitutional tendency to warts, or to fatty and other simple tumours, I cannot suppose that there is any material in the body which must work itself out of it, and which selects this situation or that indiscriminately, or perhaps makes use of one in preference to another from finding a tissue better prepared for its reception. I cannot suppose that there are various kinds of this morbid material—one breaking out as scirrhus, another as epithelioma, &c. If the cancer poison be of one kind only, we should surely find it more frequently appearing in the same subject at one time as encephaloid, at another as scirrhus, at another as epithelioma, or some other form of malignant disease. Yet this is seldom the case, though it does occur. I quite admit that the nature of a cancer will be modified by the character of tissue in which it appears, and by the general activity of the tissues. We may find this in gout, or rheumatism, or syphilis. But the sufferer from either of these diseases will be liable to attacks of it at different times in every possible form, or in many forms at once, and this we do not so often find in cancer. Other general or blood disease, as the exanthemata, will produce structural change only in certain tissues. Now, however mild and however limited the local manifestations of any recognised blood disease may be, we find evidence of a general affection of the system as well. We cannot say as much for cancer.

Before entering further into the question, it will be desirable to settle what is to be included under the terms "cancer" and "malignant." Here we have at once wide divergencies in the opinions of pathologists. Paget says, "The chief distinctions [of malignant tumours] are to be traced in certain characters which in the malignant tumours or cancers (for these terms are synonymous) are superadded to those already cited as belonging to the whole class"—i.e., of tumours. This again raises the question, What is malignancy? This is well laid down by Paget as presenting six characteristics, more or less prominent, and more or less divergent from any found in innocent tumours. They are—

1. Dissimilarity in structure from natural tissue.
2. Tendency to infiltrate the structures around them.
3. Tendency to softening and ulceration.
4. The indisposition of the ulcer to heal, and the continual formation round the ulcer of new morbid material, which goes through similar changes.
5. Not only enlargement of original tumours, but tendency to multiply and propagate themselves.
6. That in their multiplication and ulceration there is scarcely a tissue or organ which they may not invade.

But while thus defining malignancy, Mr. Paget would limit the application of that term to cancer. Assuming, however, that these are the signs of malignancy, we cannot absolutely limit that term to what are generally recognised as cancers; but we must, I believe, include such diseases as cystic sarcoma, enchondroma, fibroma, lymphoma, &c., which, as we shall see, *may* present all the characters here laid down. Mr. Paget, it is true, while not prepared to admit that these growths are truly malignant (unless in those cases where true cancerous structure is mixed up with that of the tumours), yet cites cases in which, he allows, there are characters of malignancy which should make us cautious.

The view generally accepted is that the term "cancer" should be restricted to tumours having in common one special character, in addition to those above enumerated. This character is the presence in greater or less abundance of ununiform cells with large nuclei, having no cohesion with one another, and, indeed, for the most part floating freely in a clear fluid in the alveoli of a fibrous stroma. This is the view taken generally by Virchow and his school, and by the majority of the Pathological Society. These authorities, however, admit the malignant nature, the infecting power, the dissemination, the tendency to recurrence, &c., of other forms of tumours, calling them malignant sarcoma, malignant enchondroma, &c. This is not a mere matter of definition of terms; on the contrary, it is one on which depends, to a great degree, the solution of the question—Is cancer a blood disease?

Although I shall use the term cancer in its ordinary acceptation, I may here state that I do not regard this disease as essentially distinct from other recurrent and infiltrating growths. I mean that I do not suppose that there is any difference in the albumen and the gelatine and the blood of one or other of these; that there is no special *materies morbi*, but a difference of arrangement only—a difference of more or less. The reason why cancer shows so much more of the nature of malignancy than other forms of tumour may be found perhaps in the simple fact that the elements which compose it are so much more free from cohesion, so much less organised; and that they are not, for the most part, separated from the tissues in which they lie by any limitary membrane, but grow at the expense of these tissues. Thus the free unadherent germs of growth can readily be taken up by the absorbents or bloodvessels or loose connective tissue spaces of the parts in which they are growing. We shall see that this takes place in regard to structures far more compact than cancer.

We may now consider in detail those special characters which have led to so firm a belief in the blood origin of cancer. Perhaps that which seems to be the most conclusive evidence to the large majority of those who hold this view is the almost constant recurrence of the disease after removal. Entire and permanent immunity does occur, but it is undoubtedly rare. In such cases it would be said, first, that the blood-poison having worn itself out, or been eliminated by the formation of the tumour, no further development took place when the local tumour was removed; or, second, that two conditions were necessary for the formation of cancer—one, the blood-poison; the other, a fit state of tissue in which it might manifest itself; and that, a tumour having been removed, there remained no fit nidus for its reproduction. The first view is that taken by Mr. Simon, who considers that the tumour stands in the same relation to the *materies morbi* as a secreting gland does to the matter eliminated by it. The second view is that maintained by Mr. Paget. It need scarcely be remarked that these two conceptions necessarily lead to opposite modes of practice; for if the tumour be an eliminative organ it would be undesirable to remove it at all, as the disease must find some outlet; and many surgeons, acting on this view, object to early operation. But if it may be that on the removal of a tumour no other tissue is in a condition to take on the diseased action, it would be well to operate early, if only on the chance of such a want of consent between the blood and the tissues.

These cases of permanent cure after operation are, we may admit, exceptional. The more common event is that, after removal of a tumour, in favorable cases, there is immunity for a longer or shorter period—some months or some years. Is the blood diseased during this time? Are the other tissues free from disease? It is most important here to consider the mode of recurrence of the disease. It is a recognised fact that cancer rarely returns either in an organ corresponding to its original seat, or indeed in any organ which is the usual seat of the primary disease. A cancer in the breast, e. g., rarely returns in the opposite breast; so in the testicle, or the eye, or the side of the lip. Primary scirrhus, again, is rare in the lymphatic glands, in the integuments of the trunk or limbs, in the lungs; while its by far most common seat is the female breast or the uterus. Now, supposing that recurrent cancer is a development, *de novo*, the result of a diseased state of blood in combination with a fitting tissue, should we not expect that very often the return would be in an organ which is the common seat of the disease? Take, for example, an excision of the female breast. The patient remains well for two years, and the disease then returns. If this is a new development dependent on constitutional causes, it would be strange indeed if we did not often find it taking place in the other breast, or in the uterus; still stranger that it should occur in nineteen cases out of twenty in tissues or organs which are rarely the seat of primary cancer. Yet such is the fact. Mr. Sibley,* in his careful analysis of 520 cases of cancer observed in the Middlesex Hospital, did not find one in which a recurrence of the disease took place in the ordinary seats of the disease. Surely this fact alone should make us pause ere we admit that a cancer-poison in the blood is one of the factors in the production of cancer. I quite admit the force of the argument that an operation may so change the tissue of the part operated on as to make it a fitting seat of future disease. But this will only apply to those cases in which the return is in or around the cicatrix, not to those where distant lymphatics or lungs or other internal organs are affected, the cicatrix remaining sound. And still the difficulty of accounting for the fact that, with a cancerous state of blood existing for a length of time, no recurrence takes place in the organs most prone to the disease would remain the same. The influence of local condition must be at least more powerful than that of blood.

And during all this time, as well as before the discovery of the original tumour, the patients are usually in robust health. Nothing can be more erroneous than the belief entertained by those who have not had much experience of the disease that that there is a cachectic condition in the early stages of cancer. To use the words of Professor Humphry, "So much is said and written about cancerous cachexia, that cachexia comes to be regarded as a necessary associate of cancer. Hence physicians and surgeons rely upon it as a means of diagnosis, and conceive that a disease cannot be cancerous because the patient's health is good. Whereas, in reality, cancer, especially in early and middle life, fastens itself often, I would say oftenest, upon those who are well nourished and florid, who seem the most healthy and robust, and so give promise of long life and vigor."* This point is of the utmost practical importance; yet it is generally ignored, or rather the opposite opinion is generally entertained. Tumours are discovered, and are allowed to grow till too late for removal, the patient, or perhaps the medical attendant, considering that there was nothing of consequence in them because there was no appearance of cancerous cachexia. In reality, however, the fact that a tumour is developed in the breast of a person in otherwise sound health, and over thirty—a tumour painless, and only discovered when already of some size,—is enough to justify a more than suspicion that it is cancer. If cancer should ever be removed by operation, I suppose few will deny that the sooner it is done the better. But what chances of successful removal are daily thrown away owing to the presence of those very conditions which should most surely excite suspicion in the mind of the surgeon. I hope I may not be misunderstood in what has been here stated on this point. It refers to the large majority of cases. There is no doubt that cancer does attack those who have been delicate, and have suffered from one complaint or another all their lives; but even in such persons there is usually nothing from which one could predicate the after-development of cancer as one usually can in the states of health leading up to tuberculosis.

There is another circumstance in connexion with the recurrence of cancer after operation which to my mind is very significant. I have noticed, and it has been verified by the observation of many others, that concurrently with, or following on, the development of cancer, small outgrowths of warty, or vascular, or dermoid structure are frequent. Now one would imagine that, if there were a cancer-poison in the blood, these or one of them would become the seat of the disease. But it is never the case, although a large outbreak of cancer has taken place in other situations, such as are the usual seats after operations, but the rare ones independent of them. The frequent coexistence of cancer with other growths will be again alluded to.

The hypothesis of the double origin of cancer, a state of the blood and a state of local tissue fit for its invasion, presents another difficulty. It implies that this diseased blood-condition may exist, and be long present—indefinitely long for aught we know, —without any, even the slightest, deviation from robust health. Something allied to it may be seen in syphilis, but with a difference. A person may have a syphilitic taint, which will not for a length of time have any external manifestation. But should this person have an accident, or be in any way put out of condition, the influence of the poison will display itself. In cancer, on the contrary, whether previous to its recognised development or while it is present, or in the interval between operation and its recurrence, up to the time when cachexia has actually set in, any injury, a wound, a bruise, a fracture, may occur, and no influence of the disease will be manifested. Unless in the case of syphilis —and even there the presence of sound health rarely accompanies its presence in the system,—all blood diseases will be attended by a state of deviation from sound health, even when there is no external or local expression of disease.

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* Sibley: Med. Chir. Trans., vol. xlii.

* Holmes's System of Surgery, first edition, vol. iv., p. 597.

There are other and stronger grounds perhaps for considering that the persistent redevelopment of cancer is no proof of the presence of a blood-poison. There are few forms of unencapsuled tumours which do not from time to time exhibit precisely the same tendencies to reproduction which we see in cancer itself. Fibroma, enchondroma, myxoma, sarcoma, myeloid, &c.—all may show the same tendency, though no trace of cancer structure can be detected. In many forms of tumour—as the recurrent fibroid, for example—the disease, after apparently complete extirpation, returns only in the original neighborhood. It may be remarked, too, that a long period may elapse between the operation and any appearance of return. But often we have a general dissemination as widespread as we ordinarily find in recurrent cancer. Thus in a case of fibroplastic tumour which I brought before the Pathological Society,* there were secondary tumours in the liver and kidney, and the lungs were remarkably studded with them. These secondary growths in the lung were all encapsuled, and in no place could any trace of cancer structure be found. In another case, recorded in volume xx. of the Pathological Society's Transactions, a widespread deposit of cartilaginous and of spindle-cell tumours in the abdomen and chest followed the removal of a cystic disease of the testicle two years previously. The original tumour contained cartilage-nodules, and was perhaps, as Virchow has pointed out, originally an enchondroma. No cancer structure could be found. Such cases are by no means rare; indeed, they are now so universally recognised that it is hardly necessary to do more than call attention to them.

Although, however, we have this widely recurrent dissemination in tumours not cancerous, there is often, it must be admitted, a difference in the seats of recurrence. In the fibrous or cartilaginous, or other non-cancerous growths, the secondary tumours appear in the line of the absorbents leading to the more central parts, as in the neighboring lymphatic glands, or those still more removed, or else in the direct line of the venous circulation, as in the lungs or liver. But we rarely, if ever, find recurrent non-cancerous growths in organs out of the direct line—if we may so speak—of infection. Thus we should not expect to find a myeloid or a sarcomatous tumour of one limb followed by a similar outgrowth in the brain, or the muscles of a distant part, or in one of the other limbs. In cancer, scirrhus and encephaloid particularly, we are not surprised to find recurrence in any situation or in any tissue. This is, after all a question of degree. Epithelioma is as truly cancer as scirrhus, yet we find very little disposition in it to contaminate distant organs. The neighboring lymphatics and the parts surrounding them are the chief homes of secondary deposit and growth. It must be admitted, too, that cancer gives rise in its later stages to a cachexia far more marked, in proportion to the amount of actual structural disease, than is ever seen in the case of non-cancerous growths. But, as we shall see, the cancerous cachexia is the result for the most part of cancerous ulceration.

No doubt exists in the mind of any pathologist as to the mode of recurrence in many tumours, cancerous or non-cancerous. The diseased structure finds its way into the absorbents or the veins. In the former it lodges and grows; in the lätter it is carried away and deposited just as other minute emboli would be, and sooner or later grows at the seats of arrest. Mr. Paget* relates a case in which the matter of an enchondroma was found in the lymphatics of the testicle, and had made its way by ulceration into the interior of the vena cava; the lungs were studded with secondary enchondromatous deposits; many small shrub-like growths were also attached to the inner membrane of the branches of the pulmonary artery. Nothing could be clearer than the course of the disease in this instance: a cartilaginous tumour in the testicle; cartilage-growth traced up the lymphatics of the cord; one of these growths ulcerating into the cava; particles of this growth washed away in the current of the blood; some adhering to the pulmonary artery, others, forced onwards to the smaller ramifications, arrested and forming encysted nodules of the disease. We have, in fact, the ordinary conditions of embolism; but the emboli are living and growing, instead of being mere inert exudations. It is far easier to explain the recurrence of disease, whether cancerous or not, in such cases, than in those which, without ever extending to distant organs, pertinaciously refuse to be eradicated from the site of their first development. Take keloid or some form of recurrent fibroid for example, which cannot surely be reckoned amongst blood diseases. In the former, especially, the whole course of the disease is so purely local that we could no more attribute it to a general cause than we could a wart or an atheroma or a nævus. The cicatrix keloid of Dieburg is frequently associated with the removal of some innocent tumour, as chronic mammary. As the wound heals, which it may do readily, the cicatrix assumes the peculiar character of keloid. The points where sutures have been inserted take on the same character. The affection increases up to a certain point, and there stops. Remove it, with a large amount of the healthy skin around it, and as healing takes place the keloid forms. Here, then, we have a condition dependent on the cicatrisation of an apparently healthy skin; stationary, or nearly so, when once formed, but recurring after removal, however freely the operation may have been performed. But while it will take place on cicatrices in some situations, wounds in other parts may heal without any appearance of the disease. Save in the disposition to recurrence in a cicatrix, there is no point of similarity to cancer or other malignant disease. The course of some recurrent fibroid tumours is very similar, but in them there is a far greater tendency to extension and to recurrence at a distance from the original seat of disease, yet still within narrow limits. Now, although these could under no circumstances be regarded as blood diseases, but must be the results of some peculiar state of tissue, the tendency to recurrence is, I believe, far more difficult of explanation than it is in such diseases as recurrent enchondroma, where the morbid structure can be traced into absorbents and bloodvessels, or as cancer itself, where, besides in these, it can be found spreading in the connective-tissue spaces.

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* Pathological Society's Transactions, vol. xxi., p. 71.

* Lectures on Pathology, third edition, p. 525.

It will be necessary to enter at length on the subject of the dissemination of cancer. We may start from the recognised physiological fact that every tissue has its own special power of reproduction. The blood brought to the tissues is the same; the tissue uses what it requires, and produces its like. I do not enter on the question of where, in the tissue, the power resides—whether in muscle alone or in cell. The experiments of Ollier have demonstrated that the scrapings of the soft inner layer of periosteum will form bone-nodules in whatever tissue they may be implanted. The recent practice of transplantation proves that epithelial cells planted on granulations will germinate and form layers of new epithelium. It is in tissues of low vitality and great tenacity of life that such experiments succeed; but they are sufficient to prove the fact. Hence we should expect that in cancer this growth from transplantation would be even more likely to occur, as it exceeds other tissues in the low vitality and tenacity of its elements. Intentional experiment has, of course, not been made on the human subject; but unintentional experiments have not been wanting. Several cases are recorded of men, whose wives have had uterine cancer, having themselves been victims to cancer of the penis. Of this I met with another instance only a short time ago. These *may* be mere accidental coincidents. They probably are, for there is no sufficient proof that cancer may be communicated from one person to another. Further evidence is still required on this point. There is no want of evidence of auto-inocculation. My colleague, Mr. Shaw, attended a patient in whom a pendulous breast, the seat at its lower part of ulcerated cancer, rubbed against the skin of the thorax. At the point of contact cancerous ulceration took place, the intervening skin between this and the fold of the mamma remaining healthy. Dr. Reinecke* has related two cases in which abdominal cancers were tapped, in error, with a trocar and cancerous growth took place in the abdominal walls along the track of the puncture. Cancer is constantly found in the serous cavities at points opposed to those which have been the previous seat of the disease; and surgeons are familiar enough with the fact that, whenever a cancer is cut into in operation instead of cut out, the neighboring parts become at once the seat of widespread disease. Dr. Moxon† showed at the Pathological Society a very interesting specimen, in which it was clear that numerous small nodules of epithelial cancer, occupying the lower lobes of the lungs, had been transplanted from a primary growth in the trachea. Dr. Dickinson lately brought a specimen to the same Society, showing numerous outgrowths in the peritoneum from the bursting of a spindle-celled sarcoma into the cavity. Nor does it, I think, admit of doubt that in a case of my own, where encephaloid tumour within the cranium was followed by small cancerous growths at the lowest part of the cerebro-spinal sheath, the same kind of migration and implantation had taken place. The fact of the auto-inoculation of cancer and allied diseases is clearly established, and is now generally admitted.

What thus takes place on surfaces has been shown to occur within the tissues. That the absorbents and blood-vessels take up and disseminate cancer is admitted. There is as good evidence that the same may occur in any space through which minute particles can travel. The original observations of Van der Kolk have been confirmed, that dispersed cancer-cells may be found in the connective-tissue spaces of the gland to a considerable distance from the parent tumour. The same may be found in the connective-tissue of fat. If careful sections be made around and beyond the cancer tumour, cells similar to those found in the tumour may be seen clustered here and there, and lying free, in the areolæ of the connective tissue. This occurs in parts which appear to be perfectly healthy, and it shows that we may, and probably do, often believe that in operation we have got beyond the range of disease when in reality these germs have spread beyond our reach. I may recall one case which illustrates this. In that of the patient just referred to as having had encephaloid at the lower part of the spinal cord, the original disease was an intraocular cancer. The eye had been extirpated, and it was believed that the operation had been effected beyond the range of the disease. But the cancer rapidly returned; and on carefully examining the stump of the optic nerve in the eye which had been removed, Mr. Hulke found that lying in the meshes of the delicate connective tissue, between the outer fibrous sheath of the nerve and the mass of nerve-filaments, were small clusters of cancer-cells, and these were traced up to the point of section of the nerve. Of course they did not end there, but extended into the nerve beyond the point of section; and hence the speedy return. The nerve, be it remarked, appeared to the naked eye perfectly healthy.

If now we look to clinical cases, we constantly find evidence of the fact of this travelling of the cancer elements to a distance from the parent tumour. A very common phase of cancer is this: —A tumour is seated in the mammary gland, and the skin becomes adherent and puckered. The tumour does not tend to grow faster than is usual; but at some distance from it, from half an inch to three or four inches, small hard tubercles will be developed in the skin. There may be only one or two at first. The surrounding skin will appear to be soft and natural. By and by more will appear, and will perhaps coalesce and form broad hard plates. No surgeon would ever think of operating when these outlying tubercles have appeared. He would know that the disease would return at once in the seat of operation.

It may be said that I am begging the question in taking this fact as illustrating the dissemination of cancer from a parent stock. When, however, it is considered that the fact of dispersion is proved in the dead-house and by the microscope, that primary scirrhus of the skin is extremely rare, that here we have it developed in a number of separate nodules around an original tumour, I imagine that no one would be disposed to deny that these outgrowths were from germs thrown off from that original tumour.

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* Virchow's Archiv, 51 Band, 3 Heft.
† Pathol. Trans., 1870, p. 28.

We have, then, three channels through which cancer may diffuse itself—the lymphatic system, the vascular system, and the interstitial system of the various tissues; and through one or other of these channels we may conceive that any part of the body may be sooner or later infected by the migration of some of the cancer elements. Even admitting this, however, there are difficulties in the way of accepting the doctrine that cancer is at one period of its life a purely local disease. How account for the simultaneous development of cancerous growths in various parts of the body? Why the almost constant return after removal? Why should an operation give immunity for years, and then the disease return? Why should cancer sometimes retrograde and disappear, especially when another disease is making progress?

The simultaneous development of multiple cancerous tumours has been already alluded to. Evidence is wanting of the existence of such a case. Indeed it is scarcely capable of proof; for how can it be shown that in no part of the body was there a tumour existing before these multiple ones appeared? The rapidity with which melanosis and encephaloid will be disseminated when once a tumour has formed is well known. I have mentioned a case* in which, on the removal of a solitary encephaloid tumour on the sole of the foot, a host of similar tumours were rapidly developed in the whole limb and lymphatic glands. Until some undeniable case of the multiple simultaneous development of primary cancer can be produced, it is needless to argue the point; more especially as, even then, it would be no conclusive proof of blood-poison, any more than would a simultaneous eruption of warts.

The next question is—why the almost constant return after removal? The conditions of cancer, viewed by the light of other recurrent disease, give us a solution. Enchondroma, fibroma, &c., we find, return after removal in distant parts. We have the evidence that these structures may be carried by the lymphatics or bloodvessels, and when arrested at any point may grow. If this may occur in the case of structures so coarse (if one may use the expression) as those named, how much more likely would be its occurrence in connexion with a structure the very essence of which is absence of coherence of its elements. It may be illustrated by the difference we see when a recurrent non-cancerous growth and a true cancer are cut into. In the former case, in order to get at any of its component parts for microscopic purposes, we must cut off or scrape up a portion of the tissue. In the latter, the cells, which constitute the active part of the cancer, exude on the cut surface, which presents a creamy character. Nothing is more easy to conceive than that the elements which compose this creamy matter, lying free and without limitary membrane in the midst of soft tissues, would be taken up by them, by their lymphatics or bloodvessels or connective-tissue spaces, and be carried anywhere and everywhere through the body. Principally, one would expect to find them within the range of the primary tumour, on the same side of the body; and so, in reality, we do. But there is no real limit. Just as we find that when a paper of pins is swallowed they may course through the body to any extent, upwards or downwards or in any direction—so, only infinitely more readily, might these minute germs of disease travel to any extent or in any direction. The differences observable in the various forms of cancer offer a support to this view. Take the four forms of rodent cancer, epithelioma, scirrhus, and encephaloid. It is, I am well aware, a disputed point whether rodent ulcer is really cancerous. I believe it to be so, as the structure of the deposit around the ulcer is like that of epithelioma, and on account of its strong tendency to recurrence. Its elements are, however, very localised—it does not travel usually even to the neighboring glands. Epithelioma, of which the elements are grosser and more coherent than those of the higher forms, will affect the neighboring glands, but will not readily pass beyond them, though it *may* do so, and give rise to secondary growths, just as will scirrhus. Scirrhus readily affects the glands, and will contaminate distant parts, but with nothing like the rapidity that is often seen in encephaloid, the structure of which is far softer, and the fluid more abundant, and laden with minute element, nuclear and granular; yet it is found that of all the true cancerous diseases encephaloid is the one which may go on to spontaneous cure or to long quiescence. This would appear to militate against the view that cancers contaminate in proportion to the fluidity of their contents. But an explanation is found in this: encephaloid is often the least infiltrating of cancers; it pushes the tissues aside, it forms connective tissue capsules around it, and hence in a large number of cases it is not brought into connexion with the tissues, as scirrhus is, so as to be disseminated amongst them. And this very fact, that the most malignant of cancers, the most rapidly growing, and the most destructive when it is disseminated, is often encapsuled, often non-infiltrating, and often less venomous than other forms, confirms the notion that it is not to constitutional but to local conditions that we must attribute the malignancy of the disease.

The laxity of tissues and the activity of vital action going on in them exercise a marked influence on the dissemination of cancer. In young persons—in those in whom there is much fat—tumours grow more rapidly, and are more quickly and widely disseminated. I have removed cancers from the midst of abundant fat, where minute points of disease have been traceable in all directions around, to the distance of from two to three inches. Surgeons know that they cannot take the fat away from around a cancerous breast too widely. Surely no one would consider these as evidences of blood-disease setting up cancers *de novo*, considering that the fat is not a tissue in which primary cancer is formed.

I believe no one doubts that the secondary growths of cancer are often the results of implantation, as are those of non-cancerous diseases. The difficulty which lies in the way of the admission of an invariable local origin is the immunity for a protracted period found at times after operation. A patient may go on for eight or ten years, or longer, apparently free from disease, and then it may return. The return in these cases is often in the neighborhood of the original tumour. This opens up a very wide field of inquiry. As has been before stated, those who maintain the blood-origin of cancer suppose that there must be another and concurrent cause—a certain aptitude in the tissue to develop the disease. The tissue alone may be in a fit state, or the blood alone in a fit state; but no cancer will be formed. It is argued then that, when the operation was performed, either the whole existing disease was taken away, and the blood, although still containing the poison, had no fit tissue on which to act; or that the operation was done at a time when the blood had been deprived of its poisonous qualities by the previous growth; and that, though the tissue might be fit, the blood was not. Hence a length of time might elapse before the two conditions came into conjunction. How long may the blood be cancerous without cancer being developed? It may be for life according to this view; but it would be to my mind more difficult to receive this than to accept all, and more than all, that lies in the way of the contrary hypothesis.

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* Brit. and For. Med.-Chir. Review, Jan. 1866.

There is no lack of facts of development which we cannot explain, and are content to say that they occur in obedience to a law, but in connexion with which we never imagine an altered state of blood. Two children of different sexes are born, and the mammæ remain alike up to a certain age, and then in one only they begin to develop; they remain effective for a certain time, and then, while other organs are in full activity, they begin to decline. In some families the hair will fall at a certain age from a definite part of the scalp, elsewhere it will grow as well as ever; or a patch of hair may become white, while in other parts it will retain its natural color. Cartilage will remain as cartilage for eighteen years, and will then ossify. In the first of these cases we see a tissue remaining quiescent for years and then starting into activity; in the second, the degeneration of a structure limited to a small spot, the remaining structure undergoing no change; in the third, a tissue undergoing continued and active growth of one kind for a long period, and then taking on a new phase of development. Now I believe that in instances such as these—and they are plentiful both in the animal and vegetable world—we have a clue to the fact that cancer may be present *potentially*, and remain for a time quiescent, to be developed in due course, independent of the condition of the blood. In breast cancer it is constantly noticed that for years before the disease has declared itself the gland has been functionally imperfect, if not physically different. The patient has been unable to nurse with it, or she has always noticed that it was not so full as the sound one, or that the nipple has never been so prominent. In the testicle it may happen that the diseased gland has always been a small one, or that it has not fully descended. In the case of epithelioma, a wart, or mole, or scale, has been seated on the skin for thirty or forty years perhaps before the disease has developed itself. I have been more and more led to the notion that the conditions determining a cancer exist in the tissue from the first, and that the disease has declared itself in due course, just as has the local degeneration of the hair. But I should not limit this to cancer. The same would apply, I believe, to many other tumours and degenerations; and I can see no greater reason for accusing the blood as a cause of these growths and degenerations than I should for the local baldness or the local greyness. The very conditions under which both scirrhus and epithelioma arise strongly, confirm this. In the latter especially it often happens that there are several similar moles or scales which remain unchanged for years, and then the disease develops rapidly in one, the others still remaining quiescent. Now considering the recognised proneness of such scales to become epitheliomatous, we should expect that, if a cancer poison were in the blood, several of these would take on cancerous action. But this we never see. In scirrhus, as has been before mentioned, various forms of aberrant growth frequently precede or accompany the development of the cancer, but no cancer attacks them. What is seen in cancer in relation to these outgrowths is seen as often in connexion with other tumours not cancerous, and not even malignant in their nature. This will be again referred to when the hereditary tendency to the disease is discussed. It is admitted, then, that in some individuals cancer is impressed on the tissue long before the tumour shows itself, even from the embryonic state. But besides this, it seems not improbable that in many there is a condition of tissue, in one part or another, which readily takes on cancerous degeneration under irritation, while without that irritation it might never occur at all. It is only what we see in the case of other diseases. A thousand people may have a blow over the tibia, and in one will form an exostosis, in another a myeloid tumour, in a third an enchondroma, while in the others, though the inflammatory action may be of greater or less intensity, no special disease will arise. There must be some predisposition to the disease, yet there is no ground for belief that it would have arisen without some exciting cause. I know no disease which better illustrates this than the cicatrix keloid before referred to. In some situations it will follow the healing of any wound. Yet the individual may be quite healthy, and the skin apparently quite natural, and in the same subject wounds may be made in other parts of the body and will heal without the development of keloid. Putting time out of consideration, this is just what we see in the return of rodent cancer or of epithelioma round the edges of a part cicatrised after operation. But though a greater tendency to cancer may exist, and though that tendency *may* exist in more than one part, that is widely different from the existence of a blood poison, which, when the disease is removed from one part, will be seeking some other habitation in which to work mischief.

What is here stated with regard to the long existence of a cancerous or other tendency in a tissue will apply to the degree of growth of cancer elements when they actually exist. In the young girl the breast tissue is present, and there is abundant growth going on in the body, but the special development of the mamma only takes place at a certain age, which may be hastened or retarded by physical or by moral circumstances. The same may be seen in a fatty tumour even. A small lump will be felt under the skin, and remain unchanged for years, and then rapidly grow into a large lipoma; but the general fat of the body will not increase—it may diminish. The same is often seen in other tumours. Now let us take a common case. A patient tells you that she has that day discovered that she has a lump in the breast. You find one as large as a walnut. It is watched, and at the end of many months has made but a slight increase. The growth of a cancer will probably be, *cœteris paribus*, proportioned to the amount of active growth elements, and should be the quicker the larger the cancer has become—i. e., the more of these elements it contains. If, then, but a very slight enlargement has taken place in the six months or more during which the tumour has been watched, how long may it not have been since the first true cancer tissue was developed? In some cases it may have been years. Of course in the large majority of cases the growth is from the first far more rapid. Take now a case on which an operation has been performed. Seven or eight years may elapse, and then there may be return. These, again, are exceptional cases; but the disease may have been present, though inactive, all that time. Two of the last cases which have occurred to me are these. I removed a cancer from the breast of a lady in July, 1866. She remained quite well, save that a little fulness was found in the axilla in 1869, which underwent no perceptible change till the end of 1870, when there was a distinct tumour. This began to grow rather quickly, and I removed it in March of the present year. It consisted of a congeries of enlarged cancerous glands. In November, 1864, I removed a cancer from the breast of a lady who had had symptoms of the disease for more than three years. For six years there was no appearance of return. Then there was found a small hard tumour, not larger than a small pea, about two inches to the outside of the cicatrix. There appeared also a fulness above the clavicle on the same side. The nodule near the cicatrix is now a little larger, and the skin is adherent to it. The gland above the clavicle has increased to a much greater extent. She has no constitutional symptoms, however. Are we to suppose that in these cases the cancerous state of blood was in obeyance for years? or that the cancer poison was in the blood, but found no fitting tissue all this time, and that then the axillary and cervical glands, and the single point near the cicatrix on the diseased side, assumed the proper condition? This would be strange, considering how rarely scirrhus is developed primarily in the lymphatic glands and skin. Is it not much more likely that some cancer elements were in the glands or beneath the skin at the time of operation, and remained dormant—just as a lipoma or an atheroma will remain dormant? If this may be the case for two or three years, there is no assignable reason why it may not be so for double that time.

As if to illustrate this point, my colleague, Mr. Nunn, called my attention, while this was being written, to the case of a patient in the hospital, who was admitted six weeks ago with a very large ulcer of the leg. Soon after his admission the house-surgeon grafted several small pieces of skin upon it, and several more at different times after. For more than three weeks these grafts remained as mere raised spots on the ulcer, then suddenly started into activity, and in the course of a week or less the whole ulcer was nearly cicatrised over. The patient was a red-faced, sturdy countryman. It might be said that the cases do not admit of comparison. I believe that they do, as showing that, under certain conditions which we do not recognise, the actions of growth will be in abeyance; and that then, under certain conditions of the nature of which we are equally in ignorance, growth of unusual energy will set in. The vegetable seed, we know well enough, can be kept for centuries without action, and can be made to germinate under recognised amounts of heat and moisture. In the animal kingdom, however, the higher we proceed the more difficulty do we find in determining the vital stimuli necessary to bring each part into action. I fully admit that there is great difficulty in accounting for the long delay which may occur between removal and recurrence. I fully admit that, in some cases, there may be the same disposition in other tissues to develop cancer *de novo* as there was in the tissue originally attacked; but the difficulty is not removed by accepting the doctrine of blood-poisoning, when all the facts are taken into consideration, especially the almost invariable return in some organ near the original seat, or in some internal organ, neither being the seat, save in very rare instances, of the primary disease.

The retrogression of cancer, either standing alone or connected with the development of other disease, is a subject of great interest. It has been proved from the records of the cancer cases in the Middlesex Hospital, that the occurrence and growth of cancer are not influenced by the majority of diseases.* But cancer has been known to be arrested in its growth and to retrograde spontaneously; and the development of pulmonary tubercle seems sometimes to produce the same effect.

The cases of spontaneous recession of cancer are too few to allow of any general inference being drawn from them. Instances have been seen of the disappearance of cancer while tubercle has been developing. But Mr. Sibley's paper shows that this is by no means a necessary event. Out of 173 cases in which a post-mortem examination was made, there were 11 in which active tuberculosis was present at the time of death, and not one in which the cancer appeared to be influenced by the presence of tubercle. The occurrence of cancer, moreover, is very common in families of which other members are consumptive. While it may be admitted that cancer and tubercle do not often coexist, there is no proof that they are antagonistic the one to the other. The very fact of the general healthiness of cancer patients may give one reason why tubercle is so rarely found in them. Another may be the fact that cancer is generally the disease of advanced life,—tubercle of early life. Before any conclusion can be arrived at as to the relation of opposition or otherwise between cancer and tubercle, and of the bearings of that relation on the question of blood disease, it must be ascertained whether the same does not exist between tubercle and other morbid non-cancerous growths.

(*To be concluded.*)

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ON ACUPRESSURE.

By William Pirrie, F.R.S.E.,

Professor of Surgery in the University of Aberdeen.

Acupressure may be defined to be the arrest of surgical hæmorrhage by a method the principle of which is metallic compression, removable at pleasure. For this discovery we are indebted to the genius of that marvellously gifted man, whose lamented death I deeply mourn, the late Sir James Y. Simpson, who, I believe, thought correctly when he said, "The invention of acupressure will one day do more for my fame than even the discovery of chloroform."

Being perfectly convinced that acupressure only requires a fair and skillful trial to ensure its general adoption—believing, as I most firmly do, that the employment of this method of arresting hæmorrhage is the greatest single improvement in modern times in the treatment of incised wounds, and having doubled my experience of this admirable proceeding since I last wrote on the subject, I am anxious to be allowed space in the columns of THE LANCET to describe, as briefly and as clearly as may be in my power, the best methods of acupressure, and to state my decided convictions regarding its merits. I am the more anxious to do so as imperfect knowledge of the best methods of acupressing vessels, and complete misconception regarding the proper manner of performing some of them, have led to failure and other untoward results. These untoward results, and the circumstance that obsolete modes are alone described in the last editions of otherwise excellent works on surgery, have all tended to retard the more general adoption of this new means of arresting surgical hæmorrhage.

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* Sibley: Med.-Chir. Trans., vol. xlii.

At former periods in the history of acupressure it was deemed desirable to describe seven methods then in use; but the constant study of acupressure, both in hospital and private practice, has thoroughly convinced me that *three* methods only are required, and that by one or other of these every vessel which it is possible to reach by ligature may be effectually secured by acupressure.

At my last interview with Sir Sames Y. Simpson I stated my belief that the more general adoption of acupressure would be greatly accelerated by its friends recommending *three* methods *only*, and by their agreeing to distinguish them, not by the *old* numbers, which would be no longer applicable, but by a *new* nomenclature. Sir J. Y. Simpson highly approved of these proposals, and on the following day sent for consideration the names hereafter mentioned.

MODES OF ACUPRESSURE.

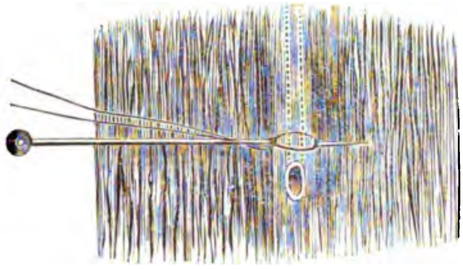
Three modes only of acupressure are required, and it was resolved by the late Sir James Y. Simpson and myself to designate them by the names of Circumclusion, Torsoclusion, and Retroclusion. In arresting hæmorrhage by circumclusion, an acupressure pin and a loop of inelastic iron wire are employed, whereas for the performance both of torsoclusion and retroclusion a pin only is required.

I prefer the pins suggested by myself to any others; and those who are desirous of using them will have no difficulty in obtaining them, and the proper kind of inelastic wire, from Messrs. Weiss, Strand, or from Messrs. Coxeter, Grafton-street East, London.

Circumclusion.—As the metal goes round the vessel, this mode of arresting hæmorrhage is called circumclusion. It consists in entering a pin in the tissues a line or two to one side of the artery to be circumcluded; pushing it behind, and causing its point to emerge a little beyond the vessel; passing a loop of inelastic wire over the point of the pin, bringing the wire over the track of the artery and behind the stem of the pin, drawing it sufficiently tight to close the vessel, which is proved by the arrest of bleeding, and fixing it by a single twist around the pin. This description and a glance at the accompanying illustration will make the mode of performing circumclusion sufficiently clear, and the *rationale* of its operation in arresting hæmorrhage perfectly intelligible.

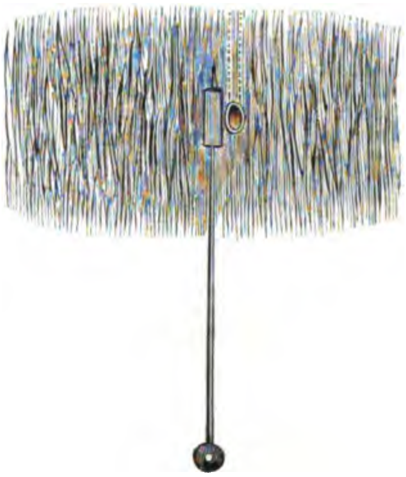
In my experience of acupressure, no fact has struck me more than the slight degree of pressure required for the perfect arrest of circulation through an artery, provided the pressure be direct and continuous. In performing circumclusion, it is important to have this fact impressed upon the mind, so that unnecessary and injurious constriction may be avoided. Of all methods of acupressure this is the best. It is perfectly reliable, it is most generally applicable, it may be performed in an amazingly short time, and, like the other methods in ordinary circumstances, without the aid of any assistant. When an artery is situated in a confined corner of a wound, or when cut short in a perpendicular surface, by taking hold of the mouth of the vessel with an artery forceps, and drawing it out very gently, the passing of the pin below, and the loop above, the artery will be greatly facilitated. When the artery is to be relieved from acupressure, the head of the pin should be gently twirled, and, having thus been rendered loose, may be pulled out with the greatest ease without causing any pain; after which the loop, being liberated, can be readily withdrawn.

FIG. 1.



Circumclusion.

FIG. 2.



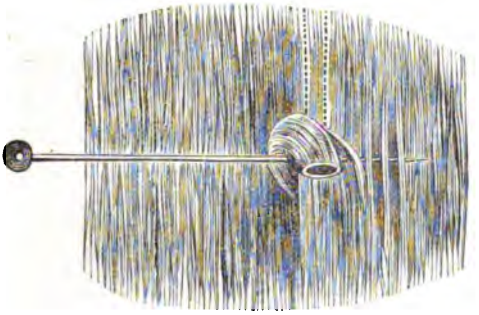
First step of Torsoclusion.

Torsoclusion.—Torsoclusion, formerly described by me under the name of the Aberdeen method, or the method by the twist, requires for its performance a pin only, and consists of two steps.

In the first step, the pin is inserted in the tissues pretty close to the mouth of the bleeding artery; it is then pressed onwards in a direction parallel to that of the vessel; and its point is caused to emerge to the extent of several lines, when the parts will present the appearance delineated in Fig. 2.

The second step consists in giving a quarter rotation to the pin, so as to place its emerged extremity above and at right angles to the artery; in pressing it well down against the small portion of tissue between the instrument and the vessel; and in sending the point for some distance into the tissues beyond the artery, for the purpose of securing the pin in position and of maintaining the twist: when the parts will present the appearance shown in Fig. 3. The artery is to a certain extent twisted, as well as steadily compressed, and in that way, no doubt, the occlusion of the vessel and the suppression of the hæmorrhage are effected.

Fig. 3.



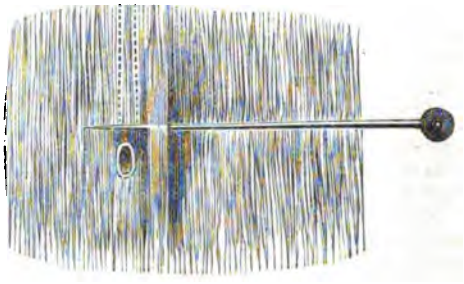
Second step of Torsoclusion.

Of all methods of acupressure, that by torsoclusion as now described is the simplest, the easiest, the quickest, and it has the indispensable recommendation of being perfectly efficient. In reference to the advantages of this method, I beg to be allowed to quote from my own writings. "Simplicity, efficiency, quickness, and ease of performance, are unquestionably great recommendations; but this method possesses two other advantages, of the greatest importance for obtaining either immediate union or union by primary adhesion: the one, that there can be but little molecular injury or straining of tissues: and the other, that, by the gentlest twirl and traction, the pin can be easily withdrawn, with extremely little, if any, discomfort to the patient. Surgeons who know how little produces pain in an amputation wound, how slight a degree of pain is apt to cause involuntary contraction of muscles in the stump, how certain such contractions are to separate parts of the internal surfaces of the wound from each other, although by retentive means its edges are kept in apposition, and who, after the greatest anxiety to obtain the best results, have so often, in a few days, witnessed the disheartening effects of such contractions, will fully appreciate the value of a means of arresting hæmorrhage which, at the moment deemed judicious, can be removed, not only without pain, but almost without discomfort to the patient."

The first time the femoral artery was secured by this method was by myself, in an amputation of the thigh, in the Aberdeen Hospital, in June, 1864; when those present were exceedingly gratified with the great simplicity of the method, as well as the facility with which it could be employed. Since that time it has been employed in an immense number of cases, by the late Dr. Keith, by Dr. Fiddes, and myself; and it is to be hoped that our united testimony in favor of this admirable mode of arresting hæmorrhage may induce surgeons of other hospitals to give it a fair trial.

Retroclusion—so named in consequence of the pin passing ultimately behind the artery—is a convenient mode of securing vessels of small or very moderate size; and, like torsoclusion, consists of two steps, and, like that method of acupressure, requires a pin only for its performance. In the first step, the pin is entered in the muscular tissue, a little to one side of the artery, held almost flat upon the wound, caused to emerged, and passed in front and a little beyond the track of the vessel, as shown in Fig. 4. It should be particulary observed that, in this movement, only a few muscular fasciculi are raised upon the pin, and that it is caused to emerge from the tissues before being sent across the track of the artery.

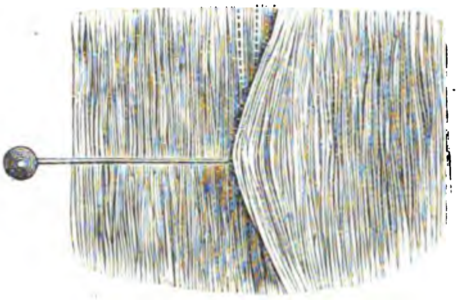
Fig. 4.



First step of Retroclusion.

In the second step, the head of the pin is made to describe the greater part of a semicircle, so as to be placed nearly flat on the opposite side of the wound; its point is then sent behind the artery, in the contrary direction to that in which it passed in the first movement, and pressed on until it is fixed in the tissues beyond the vessel, when the parts will present the appearance delineated in Fig 5.

Fig. 5.



Second step of Retroclusion.

When is it safe to free an Artery from Acupressure?

If one could tell the earliest time at which an artery could be safely freed from acupressure, that would accelerate its more general adoption; but time and experience alone can teach this, and time and experience have not yet done that work. Nevertheless, they have done enough to teach us that, in ordinary circumstances, where acupressure has been skilfully performed, vessels of comparatively small size, such as the facial, temporal, radial, ulnar, mammary, and spermadic, may be safely freed from acupressure in eight hours; and larger arteries, as the humeral, axillary, and femoral, in twenty-four. I have a strong impression that future experience will show that the early friends of acupressure have been too cautious in removing the compression, thereby using the full advantages of its use, and that much shorter time will yet be proved to be sufficient; and the shorter the better for increasing our chance of the most coveted methods of healing wounds. On the adoption of acupressure in Aberdeen, in 1864, we had no experience to guide us on this most interesting point, forty-eight to seventy-two hours being then deemed necessary; and, in working out this problem, we have perhaps gone on too slowly shortening the time; but we felt ourselves bound not to expose our patients to untried risks, and also not to injure what we consider a valuable proceeding by the occurrence of hæmorrhage from imprudent haste.

Two cases produced a strong impression on my mind, as holding out great encouragement to shorten the duration of acupressure. One was that of a little boy, whose thigh was amputated by the late Dr. Keith, and who, four hours after operation, in the absence of the nurse, took out the pin which compressed the femoral artery without any bad result. The other was that of a girl whose arm I amputated, and fifteen hours afterwards relieved the axillary artery, without the withdrawal of the pin having been followed by a drop of blood.

Everyone knows how greatly the dread of hæmorrhage has retarded the progress of surgery; but to show how little risk there is of bleeding on relieving arteries from acupressure, I may state that the late Dr. Keith and myself, in hospital and private practice, compressed altogether upwards of two thousand arteries; that in one only of Dr. Keith's cases was there bleeding on the removal of the pin, and in one only of my own; and in each case the artery was again acupressed in a few seconds. In the one case Dr. Keith had performed amputation in the forearm, and the bleeding was from the radial; in the other I had performed amputation in the upper third of the leg, and the hæmorrhage was from the anterior tibial artery. We read of the pin having been left for five days compressing the femoral artery, which is contrary to every rule that obtains in relation to the process; and the wonder is that, left so long, it should not have caused irritating results.

Effects of Acupressure on Arteries.

On dissection, I have not seen any division or laceration, any discoverable injury or degeneration, any suppuration or sloughing of the coats of an artery at the site where it had been acupressed; and, with the exception of two cases, the condition has been occlusion from adhesion of the internal surface, and an internal coagulum more or less adherent to the artery. In one of the exceptional cases there was a coagulum an inch in length adherent to the artery, without adhesion of the internal surface. In the other, four vessels had been acupressed; in the two larger there was an internal coagulum and adhesion at the site of the compression; and the two smaller were closed by lymph at their cut extremities without an internal coagulum. In the first-mentioned case death was caused by shock thirty-six hours after operation; and in the second, by violent dysentery, which commenced on the third, and proved fatal on the tenth, day after operation.

Merits of Acupressure.

Under this head there are two questions to which, as a firm believer in the advantages of acupressure, I earnestly beg the unprejudiced consideration of surgeons.

1st. *Is acupressure a practicable and trustworthy method of arresting surgical hæmorrhage?* That it is so is incontrovertibly proved by the fact that, since March, 1864, with the exception of two cases to be afterwards mentioned, in all my operations, both in hospital and private practice, comprehending, among many others, amputations in the thigh, leg, arm and forearm, and at the ankle-joints; in excision of the mamma, testicle, knee and elbow-joint, those of the mamma and elbow-joint having been very numerous; in all operations admitting of the surfaces of the wound being brought together—in short, in almost every variety of operation, age, and sex, I have invariably employed acupressure, and never in a single instance failed in arresting the hæmorrhage. What stronger proof of the practicability and trustworthiness of acupressure could possibly be desired? If to this evidence be added the experience of the late Dr. Keith and that of Dr. Fiddes, two unwavering believers in the superiority of acupressure over every other method of arresting surgical hæmorrhage, whose cases, along with my own, constitute the experience of acupressure at the Aberdeen Infirmary, surely the question of the practicability and trustworthiness of this method of checking surgical hæmorrhage must be set at rest.

In two important operations above referred to—the one the removal of a tumour upon and underneath the angle of the jaw, the other excision of part of the lower jaw, submaxillary and sublingual glands, and a portion of the tongue—I considered it prudent to give the preference to the ligature, as the pins during their brief sojourn in the wound might have caused inconvenience during deglutition.

2nd. *What are the special merits of acupressure?* The greater tolerance of living tissues to metallic than to textile bodies; the brief sojourn of the hæmostatic agent in the wound; the satisfaction to the surgeon of being able to remove that agent the moment removal is deemed advisable; the comfort and encouragement experienced by the patient on being assured, at the conclusion of a very brief period after operation, that all foreign matter has been removed from the wound; the immunity of the coats of arteries from laceration and sloughing, and, in consequence of that immunity, the diminution of the risk of septic poisoning, a case of which I have not seen since the adoption of this method of arresting hæmorrhage,—are unquestionably great advantages of acupressure. The superiority of acupressure, however, will be made more apparent when we consider what results we desire to obtain after operation, and how these may be best secured.

Union by the first intention, or by primary adhesion, is the aim of every surgeon, where accurate coaptation of surfaces and edges can be maintained. So long as we leave foreign bodies in wounds this much to be desired result cannot be obtained. If, on the other hand, we free them from all such bodies at a period so early that their presence cannot give rise to irritation, an insuperable obstacle is removed, and union by one or other of these methods will in all probability ensue. Here, then, is demonstrated the superiority of acupressure over all other means yet devised for the arrest of surgical hæmorrhage. For a few hours after an operation has been performed we can with perfect safety withdraw the pins, and all *local* hindrance to early union is thus overcome. My own experience, as well as that of the late Dr. Keith and of Dr. Fiddes, proves the correctness of this statement. Prior to our adoption of acupressure in 1864 I had never seen, in any case where a large vessel had been secured, a perfect example of union by the first intention. Since then I have had examples of this method of healing in every amputation of the body, with the exception of the leg and at the hip-joint—the latter operation I have not, during that period, had occasion to perform,—in excision of joints and tumours, and many other minor operations. In addition to cases of union by the first intention occurring in the practice of the late Dr. Keith, Dr. Fiddes, and myself already published, let me mention one or two remarkable examples of early union.

On a girl twelve years of age I performed, according to my own method, amputation at the ankle-joint, on account of extensive caries of the bones of the foot. Three vessels were acupressed; the wound was exposed to the air until its surfaces had become glazed, and its edges, having been brought into accurate apposition, were retained simply by strips of plaster. The wound healed without there having been a single drop of discharge of any kind; and on the twelfth day after operation the patient, being perfectly convalescent, left the hospital. Such a result cannot but be considered unusual in the amputation of the ankle-joint.

One of the most striking cases I have ever seen was that of a female the subject of a huge adenoid tumour of the mamma, which I excised, she being at the time in the ninth month of pregnancy. The tumour weighed 13¼ lb. The wound healed entirely by the first intention; fifteen days after the operation she was discharged from the hospital, and on the ninth day following she gave birth to a healthy female child, which she was enabled to suckle, much to her own satisfaction, as she attributed the loss of two former children to the want of breast-milk.

In another case—a private one—a carcinomatous mamma, of large size, was excised on a Friday, and on the following Sunday week the patient went to church, the wound having entirely healed by that day, without the formation of a single drop of pus.

In another case of the same disease I removed a large mamma; perfect union by first intention took place; and fourteen days afterwards the patient left the hospital, remarking that she had enjoyed her residence there very much—rather an unusual statement for a patient to make who had been the subject of operation at a period so immediately preceding.

I might enumerate many other equally striking cases, but for the present the foregoing must suffice. The favorable results I have experienced during the last seven years I attribute entirely to the coats of the vessels secured having been neither cut nor lacerated, to the non-irritative properties and early removal of the hæmostatic agent used, and to the comparative disuse of dressings. With regard to the last-mentioned point, I may state that, with the exception of wet lint, I do not now employ any dressings, nor do I use antiseptic substances.

Before bringing this paper to a conclusion, let me remark that acupressure is far from difficult of application, and that any slight difficulty that may be at first experienced will, with a little practice, disappear; and the results following its employment will repay a thousandfold any effort made for acquiring dexterity in its use.

I have now done my best, not in any controversial spirit, to express clearly and briefly my decided convictions regarding the essential modes and merits of acupressure; and as it is specially important, for the interests of those who may become the subjects of surgical operation, that this method of treatment should be justly appreciated by the great body of surgeons, I earnestly hope that a fair and skilful trial—the only means by which a correct judgment can be arrived at—may be as fully accorded to this as to other important proceedings in practical surgery.

Aberdeen, June, 1871.

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ON GASTROTOMY: WITH CASE.*

By John Lowe, M.D.,

Surgeon to the West Norfolk and Lynn Hospital.

The term "gastrotomy," applied by Sédillot to those operations which are performed for the purpose of providing a new and permanent aperture to the stomach, excludes, of course, all those cases in which it is opened for the removal of foreign bodies.

There is some advantage in this beyond the mere improvement in terminology: it serves to group together, for more accurate comparison, those instances in which the operation of gastrotomy is undertaken for the relief of permanent obstruction of the œsophagus, whether arising from disease or injury. Including the one which I now bring under notice, this operation has been performed, in all, six times. As the whole of these cases have proved fatal, it is a question of considerable interest to determine on what the fatal result has depended; whether any precautions could have obviated these results; and whether, under any circumstances, the operation is one which promises to prove successful, or whether it is altogether unjustifiable.

For the notes of the following case I am indebted to Mr. Peacock, house-surgeon *pro tem.* of the West Norfolk and Lynn Hospital, who devoted much care and attention to the patient.

S. A. W——, a pale, anæmic woman, aged fifty-one, residing in Lynn, was admitted into the West Norfolk and Lynn Hospital at 11.30 A.M. on the 24th September, 1869, under the care of Dr. Lowe, suffering from stricture of the œsophagus and pharynx, supposed to be of a malignant nature. The patient states that about two years ago she noticed a slight difficulty in swallowing, but unaccompanied by pain. This did not materially increase until about nine months ago, when it became rapidly worse, and a tumour was observed, reaching from the cricoid cartilage to the base of the neck, which soon became on a level with the chin. At this time pain was complained of; it was more intense opposite the cricoid cartilage, and has never since been absent. She has taken no solid food for seven months, subsisting on beef-tea, brandy, &c. After being under the care of several medical men, and receiving temporary benefit from a succession of blisters, she consulted Dr. Lowe, who, at her own request, ordered her to be admitted into the hospital. The tumour has remained stationary for the last six weeks. There is no history of any member of her family having suffered from similar disease.

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* Read before the Medical Society of London.

On admission she presented an emaciated appearance, with a peculiar pinched and anxious expression of countenance; pulse 95, soft and compressible, but regular. On examining the exterior of the neck a tumour was found, having the dimensions above stated. The larynx was thrown prominently forward; internally, the pharynx was found almost blocked up with a granular mass.

A consultation was held as to the expediency of performing gastrotomy, and it was decided that, at her own urgent desire, an operation should be performed, as she must evidently soon die if not relieved. An injection of beef-tea and port wine was at once administered, and at 12.30 P.M. (pulse 80, respiration 24), chloroform having been partially given, it was found to produce alarming symptoms —Extreme faintness and pallor. Local anæsthesia was therefore substituted. An incision was made of a crucial form, each limb of which was an inch and a half in length, on the left side of the mesial line of the abdomen, and two fingers' breadth to the inner side of the costal cartilages. The abdominal structures were then divided down to the peritoneum. Very slight pain was produced during this part of the operation. Several slight vessels, which bled somewhat freely, were twisted; and as soon as all trace of hæmorrhage had ceased, the peritoneum was opened, exposing the left margin of the liver, which had previously been carefully mapped out by percussion. The index-finger of the left hand was passed upwards along the edge of the liver, and the stomach at once grasped by a pair of forceps passed along the finger. As soon as it was brought to the opening, an incision was made in the stomach and its edges united to those of the external wound by four sutures. A silver tube was then introduced, strapping applied, and the wound closed by colloid styptic, and over all was placed a fold of lint soaked in solution of carbolic acid. Enemata of beef-tea and port wine were ordered every four hours.—8 P.M.: Patient is easy and comfortable; pulse 95; respiration 30.

Sept. 25th.—9.30 A.M.: Passed a tolerably good night. The pinched and anxious expression is absent. She looks better, and says she has not been so comfortable and well for months. Pulse 96, steadily improving in tone.—10 P.M.: Complains of slight uneasiness in the chest; pulse 100.

26th.—Noon: Slight faintness and a rather troublesome cough.—Evening: No aggravation of symptoms.

27th.—1.30 A.M.: Was called hurriedly to see her, and found her pulseless, bedewed with cold sweat, lips blue, body cold. She died almost immediately after my arrival. The nurse states that the patient complained of feeling faint, and she came immediately to call me.

Necropsy, ten hours after death.—Body much emaciated. Wound healthy, with only slight trace of pus; healthy lymph uniting the integuments and stomach. Stomach healthy; inferior border slightly congested; no trace of inflammation either in it or the intestine. Pupils widely dilated. On opening the pericardium, four ounces of serum were found in it. The heart was much loaded with fat; structure soft; right auricle much distended with fluid blood; in the aorta a large decolorised clot was found. The thyroid body contained purulent points. The pharynx was almost closed by vegetations; a scirrhous mass extended to the base of the neck, but not into the chest, the intrathoracic portion of the tube being quite normal. The cervical portion of the œsophagus would merely admit an ordinary probe.

When I first saw the patient she was much emaciated and had a most anxious and depressed appearance. She could only swallow a few drops of tea with great effort. Her sensations of hunger and thirst were extreme. The fauces were filled with rough vegetations, and the gullet was so completely obstructed that it would not admit the smallest bougie. She begged earnestly to know if there was no operation which could relieve her—whether she could not have an opening made into the gullet. As the disease evidently extended to the base of the neck, I told her this was impossible; that the only thing that could be done was to make an opening into the stomach; that this was attended with much risk, and, supposing it to succeed, could only be of temporary benefit, and that I could not in the least advise her to undergo the operation. She wished to think the matter over, and shortly afterwards sent word that she would be glad if I would perform it, saying she feared not any result if she could only have it done. After again explaining to her fully all the danger to be incurred, at her earnest request she was sent into the hospital.

The operation was simple in the extreme, and comparatively painless—thanks to the ether spray. As soon as the peritoneum was opened, the margin of the liver came into view; the index-finger, passed along this, came into immediate contact with the stomach, which was readily seized, drawn to the orifice, and secured by stitches. The forceps, which I used for this purpose, answered well, and are, I think, preferable to the tenaculum, which requires more space for its use. The opening made in the peritoneum was only just sufficiently large to admit the finger, and yet was quite large enough. In uniting the edges of the stomach to those of the wound, silver sutures were passed deeply into the integument, avoiding the peritoneum. The tube introduced into the stomach was a full-sized laryngotomy canula, shortened to the length of an inch and a half, with the end carefully smoothed.

The sensation of relief during the first two days after the operation was most marked, the patient expressing herself as feeling better than she had done for the previous nine months. On the third day, when her husband came to see her, she said, "I feel so well, you need not come to see me until next Sunday." Slight faintness and a short hacking cough—the latter due probably to irritation of the pneumogastric nerve—were the first indications that all was not going on right; but the cough was not at any time violent, nor did it cause distress. The end came suddenly, whether in consequence of any change of posture I am not able to say; the night-nurse says that she did not at any time allow her to sit upright.

The examination of the body showed that the formation of a clot in the aorta was the only assignable cause of death; and there seems little reason to doubt that this was due to the altered condition of the blood from prolonged fasting, and to the shock of the operation,—two conditions, as Dr. Richardson has so well shown in his work on "Fibrinous Deposition in the Heart," very apt to lead to the formation of a clot.

In all the six cases which are recorded, five of which are already tabulated in Holme's "System of Surgery,"* the operation was undertaken for the relief of œsophageal stricture, one alone of these being non-malignant. In all, the obstruction was almost complete, and the patients were reduced to the last stage of exhaustion by starvation before the operation was proposed; and here we find the chief causes of failure—pre-existing blood-change, and inability to resist shock. In the latter stages of malignant growth, it is obvious, moreover, that the blood has undergone other changes than the mere withdrawal of its watery elements: there is distinct dyscrasia, and the blood is not in a fit state to serve the purposes of nutrition and reparation; and this want of reparative power is fully as formidable as the mere exhaustion incidental to previous starvation, or even more so: the one may, the other cannot, be overcome.

These are the most important conditions, it seems to me, in producing failure, so far as the patient is concerned. What are the causes of failure *quoad* the operation? There does not appear any reason to suppose that the mere incision into the stomach is by any means an extremely hazardous operation. The case of Alexis St. Martin shows well how reparation may take place under far more severe injury to that organ. So with Dr. Murchison's case. But the celebrated case of Shoral's proves that the operation may be perfectly successful. In what, then, does the operation of Shoral differ? Simply in the fact that the wound in the stomach was immediately closed; that there was no strain upon it, and no tension of the nerves supplying it. The union of the stomach to the wound is apt to give rise to cough, and, when food is introduced, to efforts at vomiting. Both these conditions are extremely hazardous, and tend greatly to render the operation fatal by retarding the progress of adhesion, and even, as in Sédillot's case, tearing out the sutures.

Cough appeared in two of the six cases; vomiting† in two; and in two (Fenger's and Jones's) they are not mentioned. The apparent cause of death was, in four of the cases, exhaustion; in one, embolism; and in one, peritonitis. Peritonitis appeared in two cases only—namely, in Sédillot's and in Mr. Forster's second case. In the former it arose from vomiting, which produced separation of the stitches and withdrawal of the stomach from the wound; in the latter, from separation of the adhesions through the introduction of a tube into the stomach.

The age of the patient, is not an unimportant item in enumerating the causes of failure. Five out of the six were over the age of forty-four, and three of these were over fifty. The remaining one was four years old; and, looking at this case independently of the unfortunate accident above-mentioned, one would say that it ought to have proved successful.

What precautions could have obviated the fatal result in all these cases? Clearly, we may gather this from their consideration, that if an operation in any similar instance is to have any chance of success, it must be done at an earlier period, while there is still some power of reparation left, and at a time when there is yet some material to draw upon, so that we are not compelled to put food into the stomach at an inopportune moment, when it ought to be at rest; for after the operation it seems imperative that the stomach should be kept empty and the patient supported by nutritive enemata. We should thus avoid the great risk of vomiting, which is almost necessarily fatal, since the food cannot return by the closed œsophagus, and must therefore remain as a continual excitant of expulsive effort. The introduction of the tube ought always to be effected in the first instance, as it is difficult and, as Mr. Forster's case proves, hazardous afterwards. The point at which the stomach should be opened ought to be one as far removed as possible from a fixed point, so as to cause as little tension as may be. Mr. Jones found considerable difficulty, in his case, in fixing the stomach, owing to the fact of his having seized it near the cardiac end. The closure of the wound with colloid styptic is, I think, a great advantage; and it is important to limit the action of the abdominal walls by means of strapping and bandage, so as to keep the wound as much as possible in a state of rest.

With these brief and imperfect considerations, I would, in conclusion, ask, Is the operation a justifiable one? If the cases already recorded be all we have to judge by, the answer is obvious. The data, it is true, are limited, but they are wonderfully cogent. To answer such a question we cannot, however, be satisfied with so narrow a basis of argument. The real question is, not whether an operation is justifiable when performed under the same conditions as these, but whether it is justifiable under *any* conditions. When, for instance, the disease is of limited extent, the state of the patient not one of actual starvation, the strength not yet exhausted, does the operation afford any chance of prolonging life? It may be said, and with much truth, that under these circumstances the patient would refuse to undergo the operation; but, if it is to succeed at all, it must certainly be done at this time. Most surgical authorities urge against the operation, that "the disease will certainly progress, and the operation cannot greatly prolong the life of the patient." But is not this equally true of Amussat's operation, and of others undertaken for the removal of malignant growths? What valid reason is there in favor of the one which does not exist for the other? Mainly, I apprehend that malignant disease in the rectum requires earlier operation; and that liquid food can be swallowed when the obstruction is really greater and the disease more advanced than that of a cancerous bowel which has to give passage to solid matter. Is there any reason why gastrotomy should be less successful than colotomy if performed at the same stage of the disease? The same amount of relief would be afforded if the operation succeeded; the diseased parts would be at rest, and consequently the disease would make slower progress; the patient would be freed from the pangs of unsatisfied hunger; his last days made more supportable, and possibly his life considerably lengthened.

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* Vol. ii., p. 338.

† Vomiting appears as a prominent cause of death in several cases of colotomy, and was attributed to the chloroform. Mr. J. Couper's case, for instance, exhibited no other assignable cause (*Med. Jour.*, Nov. 20th, 1869), also Mr. Maunder's and Mr. Curling's (Dis. of Test., 3rd ed., p. 177).

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ON THE EXCLUSION OF LIGHT IN THE TREATMENT OF SMALL-POX.

By W. H. Barlow, M.D.,

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Since the publication of a paper by Dr. Black, of Chesterfield, in The Lancet of 1867, upon "A Mode of preventing the Pitting in Small-pox," I have habitually followed the plan therein advocated of excluding the light and administering arsenic; and, until very recently, I have believed this to be the best mode of treating all varieties of this formidable disease. There can be no doubt (and the testimony of all who have followed out this plan will, I think, be unanimous upon this point) that the exclusion of light exerts a retarding influence upon the progress of the pustules in their later stages, so that, instead of acuminating in the usual way, they shrink and shrivel about the sixth or seventh day of the eruption. The effect of this retardation is, in most cases, to prevent that amount of pitting and destruction which is due to the changes brought about in the subjacent tissues by their later progress. That much of this pitting is really due to the effects of the stimulus of light, or, at least, of some of the rays, seems pretty well shown by an experiment, where part of the face of a small-pox patient was covered with a warm solution of colored gelatine (to exclude the actinic rays), the rest of the features being left exposed to the full action of the light, with the result of showing a marked contrast between the two portions. This result also agrees with our knowledge of the effects of light upon the growth and circulation in both animal and vegetable structures. The much-ridiculed red curtains, within which John of Daddesden enclosed his royal patient, were, therefore, not without their excuse; nor, on the other hand, were his successors wrong in rejecting them. Free ventilation is an essential in the treatment of small-pox, and it is in no way incompatible with the entire exclusion of light. The use of arsenic I do not think of very great importance. I have treated cases without any drug other than the acetate of ammonia, and they have done quite as well as those who have taken the arsenic; and during the past four years I have not had one patient badly marked, or left with any injury to the eyes. These cases have been numerous, and have included many unmodified and several confluent; and until just recently I have hailed a case of small-pox with pleasure, so sure have I felt of securing a satisfactory result. But during this present epidemic I have lost four cases of confluent small-pox under circumstances which have raised in my mind certain doubts as to the advisability of this plan of treatment in all cases; for, whether it be from the greater activity of the *materies morbi*, or merely from its greater abundance, this, like most other zymotic diseases, seems most virulent during the height of its epidemic period, and the unmodified cases are mostly confluent and very severe. Now so great is the effect of the exclusion of light upon the maturation of the pustules, and so rapid in these four cases was the sinking and death, just at the period when the pustules would under the stimulus of light have acuminated and ripened, that I have been led to believe that there might exist between them the relation of cause and effect, and that the patients have sunk overpowered by the virulence of the poison, which has, by the abstraction of the accustomed stimulus, been prevented from taking its natural course to the skin, in the same way as death may occur from the suppression of the exanthem of scarlatina or measles.

The first case was that of a young man, twenty-four years of age, who when first seen was covered with papules exactly resembling an eruption of measles; but the disease being recognised by the other diagnostic signs, the dark treatment was immediately adopted. He was a strong, muscular man, and seemed to be going on as well as possible till the evening of the seventh day (of the eruption); there was comparatively little fever, pulse rarely over 100, little delirium, and he took nourishment freely. On the evening of the seventh day he felt himself sinking, the pustules seemed pale and shrunken, and he died in the early morning of the eighth day.

The second case was that of a little girl, seven years of age, unvaccinated, with a confluent eruption on the face and neck, and very close though discrete upon the body. She died on the evening of the seventh day of the eruption, in an exactly similar manner.

In the third case, the patient, a man of forty-five, with a confluent eruption over most of the body, complained much of the absence of light, and said it was "killing" him. He sank and died with the same symptoms on the evening of the seventh day.

The last case was that of a young man of twenty-seven or twenty-eight, who also died on the morning of the seventh day.

In all these cases the death was from sudden collapse; the pulse very little altered in quickness, but weak; the surface pale and shrunken; and stimulants seemed to have no effect. Now, although deaths of this kind are by no means unfrequent in severe small-pox, even when exposed to the full effects of the daylight, yet it would be but seldom that four cases so exactly similar would occur, as these did, almost consecutively; and the shrinking of the pustules, which in these cases preceded death, so exactly corresponded with that observed in the cases which did well, and which was there looked upon as the desired effect of the exclusion from light, that my mind is irresistibly impelled to attribute it to that cause, and these deaths to its consequences,—just as in those cases where, from some other cause, the progress of the eruption is checked, though the patients have been left exposed to the ordinary influences. It is not my intention to discourage my brethren from the careful and judicious use of a measure which I believe to exercise a powerful control over the course of the external manifestations of this disease, but to call attention to the necessity of exercising care and judgment in the cases to which it is applied, as otherwise it may become, like other powerful and, in proper hands, useful means, if used rashly or injudiciously, an injury instead of a benefit.

It is probable, but it as yet remains to be proven, that as the actinic rays are, if not wholly, at least chiefly, concerned in producing the peculiar effects of light upon growth and vegetation, so their exclusion would perhaps have the desired result of retarding the development of the pustules without so completely arresting their progress as total darkness, and that the other rays might be sufficient to avoid that depressing effect upon the mind which seems to me to have much to do with the fatal result.

In the meantime, however, the clear deduction from these thoughts is, that though this mode of treatment is very useful in the lighter cases of unmodified, and in all cases of modified small-pox, yet it should be used with great caution in the graver cases of a confluent character; for we must not forget that the outward manifestions do not form the whole of the disease, and that, grave as may be the consequences of their unchecked career, there are more serious forces behind, for which these form the outlets, and as it were the safety-valves of the system.

Manchester, June, 1871.

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THE CHEMICAL RELATIONS OF URATES AND PHOSPHATES.

By A. W. Barclay, M.D.,

Physician to St. George's Hospital.

Any fact bearing on the chemistry of the urine must be of value to the practitioner. There is scarcely any form of disease in which the character of the kidney-secretion does not become an important element, either in diagnosis or in treatment. If for the moment we put aside the more important questions involved in the presence of albumen, of sugar, of pus, or of blood-globules, and many other ingredients which may be regarded as wholly abnormal, there are yet many considerations involved in the deposits of urates and phosphates which are of great service in practice. They guide the intèlligent observer in the selection of remedies; and not unfrequently they point more or less distinctly to conditions in distant organs of which the functional disorder of the kidney is only an index and a consequence.

The rule for the discrimation of the urates and the phosphates is so well known, so universally admitted, and so simple that an exception might be supposed impossible. The urates are dissolved by heat, the phosphates by acid. A precipitate in acid urine soluble by heat would consist of some compound of uric acid; a precipitate in alkaline urine insoluble by heat would be an earthy salt, and probably a phosphate of lime. Conversely, a precipitate of urates ought not to exist in hot urine; a precipitate of phosphates should not be found in acid urine.

It is very many years since, as a student at St. George's Hospital, I submitted to Dr. Bence Jones, so well known as a chemist, who was at that time one of our teachers, the puzzle, which I cannot say is even now quite intelligible to me, how a phosphatic deposit could be found in decidedly acid urine. But until recently I never met with an instance of urates insoluble by heat. On May 10th, T. S——, aged seventeen, a porter, was admitted under my care at St. George's Hospital, in a state of considerable depression, with a quick pulse, a chapped and furred tongue, and persistent diarrhœa of some days' standing, and the suspicion of enteric fever seemed rather confirmed by slight elevation of temperature. To my own mind, the history was opposed to this idea. It seemed rather to have been a case of severe diarrhœa, in which the prostration was a mild form of collapse, and the further progress of the case bore out this diagnosis. The various secretions were naturally watched, and the urine was exhibited to me with a turbid, flocculent deposit, which my clerk pronounced to be phosphates, because the urine was nearly neutral, and the precipitate was insoluble by heat, but dissolved on the addition of acid. Its appearance was certainly more like urates than phosphates, and I found on examining it for myself, that the acid only dissolved the precipitate with heat, but had no action on the cold urine. It was consequently placed under the microscope, and was found to consist almost entirely of globular urates, with high refractive powers, mixed with some crystals of oxalate of lime. Their presence in nearly neutral urine was readily explained by the scanty amount of secretion consequent on the previous severe diarrhœa, but their insolubility by heat was a phenomenon for which I was not prepared. On the following day the urine was more decidedly acid, but there was no precipitate. On boiling, however, a copious precipitate was thrown down, which was immediately dissolved on the addition of a few drops of acid. I have already alluded to the difficulty of explaining the precipitation of phosphates in the presence of acid; when the deposit only occurs after the application of heat the change is still more difficult of explanation, because the urine after being boiled becomes rather more acid than before, as I ascertained distinctly in this case, and the granular precipitate does not dissolve readily with acid after it is allowed to cool.

Formerly we used to be taught that the presence of urates was only due to acidity, of phosphates to alkalescence of the urine; but that is a very limited view. It was probably only put forward in this broad form as antagonistic to the common expression of those days, that one or other deposit showed an excess of uric or phosphoric acid, the "lithic-acid diathesis" and the "phosphatic diathesis" of Dr. Prout. It is certain that such a conclusion is very likely to be erroneous, although, perhaps, it contains some element of truth. All that can be said with certainty at present in regard to the uric-acid salts is, that when they are precipitated there must be a certain excess of acidity, and if not an excess of the salt, at least a disproportion between it and the water as ingredients of the urine.

With reference to the presence of phosphates, I conceive that we must assume the same disproportion to exist between the water and the earthy salts whenever the precipitate is abundant, especially when the urine is not decidedly alkaline. It is not an uncommon practice in the present day to maintain a certain degree of alkalescence of the urine both in rheumatism and gout. In such cases it is quite remarkable how the amount of earthy deposit varies while the urine is freely alkaline, but I have long learned by experience that a copious deposit is an indication of depression, and is sure to be followed, if not accompanied, by other symptoms of a corresponding kind. At one time I used immediately to diminish the dose of the alkali, but I have recently observed that, without making any other change in treatment, the addition of a few grains of quinine daily will have the effect of at once diminishing the amount of deposit, and will enable the patient to persevere with such a dose of alkali as he could not otherwise have taken with impunity. Believing as I do that in both forms of disease it is desirable to neutralise as far as possible excessive acidity, the effect of the quinine is to me a point of great importance in the treatment of these disorders.

Bruton-street, July 12th, 1871.

ON THE MOVEMENT OF MUCUS IN THE TRACHEA AND LARYNX.

By Henry Veale, M.D.,

Staff Surgeon, Bombay.

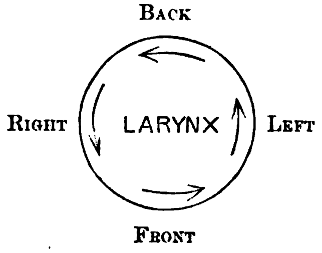
The following observations regarding the movement of mucus in the trachea and larynx may perhaps be of interest to some members of the profession.

A gentleman in fair health had been troubled for several weeks with some huskiness of voice, a frequent desire when speaking to clear his throat by "hemming" or hawking, and occasional expectoration of a little viscid mucus. This was especially the case on his rising in the morning, when he used generally to expectorate one or two pellets of mucus, of about the size of a pea or a little larger, and latterly these had been slightly streaked or tinged with blood. He had no cough, strictly speaking; nor had he the least pain or difficulty of breathing.

It was at first thought that the complaint was confined to the back of the throat; but, after repeated examinations with the laryngoscope, it was ascertained that the mucus was not secreted by the fauces or larynx, but that it came from even below the bifurcation of the trachea; and that the pellets, as eventually expectorated, were formed in the following manner:—From the opening of one of the bronchi small bead-like particles of mucus would be seen to emerge from time to time, and then to ascend, generally either across the cartilaginous rings or along the back of the trachea; but sometimes, instead of passing directly upwards, they would travel partly round the tube in the grooves between the rings. Sometimes also they would come across and coalesce with other drops of mucus; and in this way a small pellet, perhaps of the size of a buckshot, would reach the upper part of the trachea. Here their movement would cease to be immediately upward, and become almost exclusively spiral—the direction being from right to left, as shown in the diagram.

In the course of these circular or spiral movements in the larynx, the pellets could be seen to overtake one another and unite, until at length the mass so formed would reach the level of the vocal cords, and be expelled by a "hem" or a slight cough.

The rate at which the particles of mucus travelled round the windpipe varied. I never saw them make an entire circuit of the larynx in less than five minutes—usually they took from seven to eight minutes; and it is my impression that they moved more rapidly across the back of the larynx than in front or along either side, and much more rapidly round the larynx than round the trachea.



I have already mentioned that the mucus was occasionally tinged or streaked with blood, and this circumstance enabled me to identify the pellets in their change of place, and even after their expectoration. In the lower part of the trachea the circular movement is, I believe, quite exceptional, but I have seen it occur in the left bronchus. The *directly upward* progression of the particles is always accelerated by the acts of phonation, and especially by those of deglutition, but I have not observed such acts to increase the rate at which the sputa *travel round* the larynx.

Voluntary efforts of coughing seem to have scarcely any power of expelling small quantities of mucus from the trachea, or even from the larynx, unless the particles are situated either immediately beneath the epiglottis, or just below and between the arytenoid cartilages. I have frequently found the most forcible acts of coughing that could be made voluntary to fail in expelling a small pellet from the recess beneath a vocal cord. I have seen small particles of mucus adhering occasionally to the edge of a vocal cord; still, the back of the larynx is, I believe, the part from which such particles are most easily expectorated.

The huskiness of voice in the case which enabled me to make these observations appeared to be occasioned by the frequent arrival at the glottis of small particles of mucus. During the daytime these were expelled separately by the various "hems" and clearings of the throat which their presence at the glottis induced; but at night, during sleep, when the movements of the windpipe in speaking or swallowing were suspended, the particles had time to accumulate, and in this way the pellets were formed which were expectorated in the morning.

I should add that I have not perceived the spiral movement of mucus in the air-passages to be occasioned or accompanied by any movement of the mucous membrane, or any muscular action; but the particles often undergo a change of form in making the circuit. In the grooves between the rings, for instance, they are elongated; but on reaching the back of the tube they become flattened, and sometimes assume the appearance of a highly magnified amœba.

Bombay, April, 1871.

ON SUSPENSION AS A PRINCIPLE IN THE TREATMENT OF FRACTURES OF THE LIMBS.

WITH ILLUSTRATIONS OF A NEW SWING AND LEG-REST.

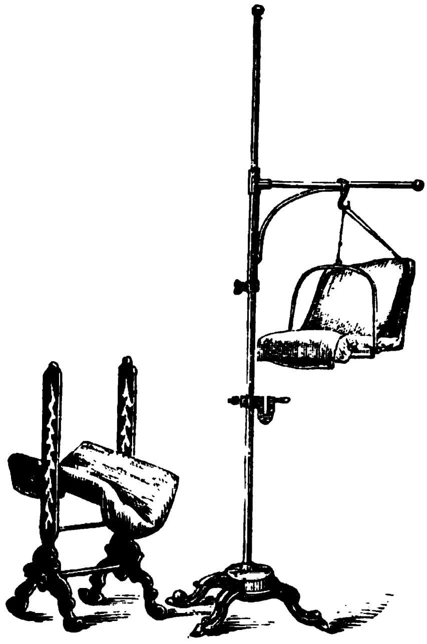
By Sampson Gamgee,

Surgeon to the Queen's Hospital, Birmingham.

The merit of generalising the principle of suspension in the treatment of fractures of the limbs belongs to two Swiss surgeons, Sauter of Constance and Mayor of Lausanne.

Flexion of the joints and consequent relaxation of the muscles; position with inclination towards the trunk, and consequent favor to the venous circulation; and mobility of the suspending medium, —are the three sources of beneficial action combined in the suspension plan.

"To ensure the great desideratum, the communication of the least possible impulse to the point of fracture, the swing should be as movable as possible, so as to exhaust in its undulations the motive power communicated to the limb, and thereby render impossible a jerk in any point of its length. ..... The swinging machines commonly made by London instrument-makers are so heavy, and the suspending medium (often a chain) so stiff and short, that, practically, there is scarcely any provision for undulation."*



On talking this matter over with Mr. George M. Restall, a builder in this town, singularly endowed with inventive talent, he applied himself to the construction of a fracture swing, and, after many trials, we have agreed upon the one here represented. In practice it answers admirably. It admits of being raised or lowered to the height of the bed, to the side of which it can be securely fixed; and the cross-bar, to which the swing is secured, acts as a cradle to keep off the clothes. Further advantage results from the fact that the apparatus does not rest on the bed, and is in no way liable to displacement by the movements of the patient.

The smaller figure represents a leg-rest, which can be raised or lowered with perfect ease, and oscillates evenly on the pivot which rests in the lateral notches.

Mr. Restall informs me that he can produce the swing, so that it may be obtained through surgical instrument makers, at a cost of £1 10*s*., and the leg-rest at 12*s*. 6*d*.; prices which will render the appliances available in hospital and general practice.

Birmingham, June, 1871.

AN OAKUM RESPIRATOR.

By Somerville Oliver, M.D.

Having witnessed the excellent results of the application of carbolic acid and also of oakum in the treatment of wounds and other lesions, it occurred to me that, in cases of phthisis and chronic bronchitis attended with purulent or muco-purulent expectoration, and also in cases of pyæmia, the purulent or muco-purulent matter would probably be diminished, and the condition of the patient otherwise improved, by the habitual use, for a time, of a "respirator" (if I may so term it), consisting of fresh oakum, or woollen cloth impregnated with carbolic-acid solution. The idea was still more impressed on my mind when a non-professional friend in Glasgow incidentally told me that those persons engaged in splitting rosin-barrels into fragments for firewood are remarkably exempt from disease, especially of the zymotic class; and that they themselves attribute their comparative freedom from disease to their special vocation.

I therefore made a rude sort of "respirator" by filling a small net (such as is worn by ladies over their chignons) with oakum; and in the few cases in which I have experimented with it, benefit has, I think, obviously accrued. Perhaps some of my professional brethren who have better opportunities than myself may make trial of the oakum or carbolic respirator, and observe the result. It may even prove useful in empyema, when the pus has found its way from the pleural cavity into the lung, in the usual way. I tried oakum rather than carbolic acid simply because I believe that the creasote of the tar acts at least as energetically as carbolic acid in destroying the minute putrefactive organisms of the atmosphere during their passage through the respirator towards the lungs, and because the oakum does not require to be changed so frequently as the woollen cloth or lint impregnated with carbolic-acid lotion.

My reason for suggesting pyæmia as a case in which a carbolic acid or oakum "respirator" may be useful is, that I imagine that the inspiration of either of the antiseptics may in some measure prevent further deterioration of the blood, and also purulent deposits in various parts of the body, especially in the lungs. Instead of wearing a respirator at night, a quantity of oakum in a net may be merely placed on the pillow before the patient. And, though oakum or carbolic acid be used as advised, other means need not be set aside in the treatment of any case.

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* Researches in Pathological Anatomy and Clinical Surgery (p. 148). By Sampson Gamgee. London, 1856.

Oakum and carbolic acid appear to be useful chiefly in those conditions where there is a tendency to production of pus or actual formation of it; and this seems to be the reason why oakum and carbolic-acid solution are apparently less valuable when applied to the indolent ulcer than they are to most other sores. The *pressure* of the *callous margin* of the indolent ulcer interferes with the production of healthy granulations, or prevents their formation altogether; consequently it also interferes with the production, or entirely prevents the formation, of pus; and the way in which the pressure of the callous margin of the ulcer prevents the formation of healthy granulations is indicated by the condition of the eye known as chemosis. In chemosis the cornea and its conjunctival layer are impaired or destroyed, it may be, chiefly by the obstruction of the circulation in the bloodvessels at the *margin* of the cornea; and in the case of an indolent ulcer, granulations are either not developed, or they are usually pale and flabby, owing in a great degree to the pressure of the callous skin around the sore on the subjacent *superficial capillaries* interrupting the flow of blood through them, and so interfering with the due nutrition of the ulcerated *surface*.

Edinburgh, 1871.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

CASES UNDER THE CARE OF DR. JOHN MURRAY.

THERE are at present some cases of interest under the care of Dr. John Murray in the out-patient department of the Middlesex Hospital, of which we subjoin short notes.

Advanced Paralysis Agitans.—The subject of the disease was a man sixty-two years of age and a bootmaker, who had suffered from this affection for seven years, previously to which time he had invariably enjoyed excellent health. He had not been the subject of gonorrhœa or syphilis, and had been in every way a temperate man. The symptoms were very marked, the muscles of his extremities being constantly in motion. His speech was much affected, his utterance being almost unintelligible. His progression was characteristic of an advanced stage of the disease, presenting as he did the appearance of falling forwards, which he would actually have done had he not occasionally broken into a shuffling trot. While standing his gait was awkward, his body and arms hanging forward. Dr. Murray concurred in the belief that these cases are probably always due to chronic connective tissue changes in the cord, as described by Dr. Cayley, and to a considerable extent amenable to treatment. In the present case the man had been under care for several months, and had been chiefly treated on cod-liver oil and carbonate of iron, during which time the symptoms were, if anything, less marked. The patient had gained flesh, and his general health was greatly improved.

Erysipelas excited by Croton Oil.—A peculiar effect of croton oil was presented in a child and her mother. The child slept with the right side of her head on the chest of her mother, who was at the time suffering from chronic bronchitis, and had applied croton-oil liniment to her chest before going to bed. In the morning the left side of the child's face was red and much swelled, the eyelids being completely closed. The mother's face was also slightly affected. There was no constitutional disturbance in either. The affection retired from both patients in twenty-four hours. It ought to be mentioned that they were both taking a mixture containing squills and ipecacuanha for bronchitis.

Treatment of Diabetes by Lactic Acid.—Dr. Murray has several patients suffering from diabetes, whom he is treating with lactic acid, as recommended by Professor Cantani of Naples. They have all greatly improved, but, as the diet has been restricted in the meantime, he is unable to say as yet to what extent the lactic acid deserves the credit. When the sugar entirely disappears, the patients will be gradually allowed to resume their diet, when the practical value of lactic acid will be tested.

Suppurating Scrofulous Glands of the Neck treated by Drainage.—Two patients (children) are attending with scrofula and enlarged cervical glands. In both patients one of the glands had suppurated. Instead of making an incision, Dr. Murray had passed a catgut ligature through the abscess, the contents of which were then allowed to drain away. The glands had quite recovered in one case, and nearly so in the other. No scar was left in either case—a matter of considerable importance, especially in the case of females.

Petit Mal.—An example of this form of epilepsy presented inself in a boy thirteen years of age, who came to the out-patient room with an abrasion on the right temple, a consequence of one of his attacks. His physiognomy and the shape of his head were epileptic, but no family history was obtained from his mother of nervous diseases of any kind. On the other hand, he was seemingly very intelligent. His mother, indeed, gave a glowing account of his intellectual capacity, and his handicraft as a painter and birdstuffer. He had suffered from the first attack about a year ago, three days after a fright caused by his boots having been stolen. Ever since that time they have occurred two or more times daily, increasing gradually in frequency. During the last week he has had fifteen to twenty during the twenty-four hours. The attack comes on with a feeling of numbness in the first phalanx of the middle finger of the left hand, which is followed about half a minute afterwards by a feeling of giddiness, when he at once completely loses his senses. The hand and fingers, and they only, are violently extended, and remain so for a period never exceeding three minutes. But frequently the hand becomes affected without any loss of consciousness, the attack presenting thus the characters of the "abortive" epilepsy of Marshall Hall. Strange to say, notwithstanding the frequency of these attacks, no impairment of the mental power is visible, and the hand retains its muscular strength intact so far as a comparison with the right hand can be held to indicate. The boy's general health is good. Dr. Murray, with the view of testing the value in this case of a ligature placed on the proximal side of the part at which the aura epileptica is felt, directed the boy to keep a ligature loosely on his wrist, and to tighten it immediately he felt the aura. At the same time seven-grain doses of iodide of potassium were ordered three times a day.

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Foreign Hospital Reports.

PATHOLOGICAL INSTITUTE, VIENNA.

SHORT NOTES OF POST-MORTEM EXAMINATIONS.

For these notes, and the following case reported from the Vienna General Hospital, we are indebted to Mr. Edward Sparks.

Primary Cancer of the Lungs.—A woman, aged twenty-two, died, as it was supposed, from pleuro-pneumonia. On opening the thorax, the right pleura was found to contain some false membrane, in which were imbedded several soft greyish-white nodules of encephaloid cancer. Similar small nodules existed in the lower lobe of the right lung, the apex of which contained a small broncho-pneumonic cavity and some caseous infiltration of similar origin. The left upper lobe contained no cancer nodules, but was intensely congested towards the apex, and lower down was hepatised. The upper part of the lower left lobe was also free from cancer, but the lower two-thirds consisted of a huge mass of encephaloid nodules, one of which was as large as a man's fist. The growth extended towards the mid-line of the body, pushing the heart far over to the right. It projected also into the left pleura, and had infiltrated the diaphragm, so that nodules projected on its under side. No cancer was found in the abdominal organs, nor in any other part of the body except the thorax.

Caries of Vertebræ; abscess opening into the spinal canal; no paralysis.—In this case, caries of the bodies of the third and fourth lumbar vertebræ and destruction of the intervening fibro-cartilage led, on the one side, to a large psoas abscess, and, on the other, to perforation of the spinal canal and entrance of pus into the latter. Although at the post-mortem the canal was found to be filled with pus below the fourth lumbar vertebra, so that the cauda equina was bathed in it, yet the man had not a trace of paralysis during his illness, and no implication of the spinal cord was even suspected.

Intra-pericardial Rupture of the Aorta in a boy of sixteen.—The subject of the necropsy died suddenly while at dinner. He was only sixteen years old, and was supposed to have been previously healthy. On opening the pericardium, a large loose blood-clot of the size of two fists was found distending it. The heart had a hypertrophied left ventricle, whose wall was an inch thick. The cavity was but slightly dilated. The mitral and aortic valves were healthy. Just above the aortic valves was found a small irregular rent in the adjacent aortic wall—all but over a patch of advanced atheromatous degeneration. The intima was slightly saculated at this point. On the pericardial side of the aorta existed a larger tear, through which the blood had made its way into the pericardium. On closer examination it was found that at the point where the aorta was penetrated a dissecting aneurism had been formed. The blood, after rupturing the intima, had split the media into two parts, so that one-half remained adherent to the intima and the other to the adventitia; finally, it had broken through the latter also. This case is interesting from the early age of the patient at which atheroma led to a fatal issue.

Disease of Tricuspid and Pulmonary Artery Valves, without affection of the left heart.—The patient, a man of twenty-seven, died suddenly in a state of extreme cyanosis. There was no history of any previous illness. On opening the pericardium, the heart appeared quite round from distension of the right side with blood. The mitral and aortic valves and the left cavities were found perfectly healthy. On the right side, however, the ventricle was so dilated and thinned that its wall appeared to be made up almost entirely of endo- and peri-cardium, through atrophy of its muscular substance. The endocardium was opaque and thickened. The tricuspid valve was insufficient, its segments thickened, and its free borders beaded from endocarditis. The pulmonary artery was very narrow where it left the ventricle, with valves shrunken up to its wall, and adherent by their edges, so that the orifice could not be closed at all. This was probably a case of congenital stenosis of the pulmonary artery, followed by disease of the tricuspid and ventricle later on, just as in another congenital abnormity of the heart—transposition of the vessels—the transposed aorta becomes the subject of endocarditis.

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GENERAL HOSPITAL, VIENNA.

CASE OF PROBABLE PARTIAL OBLITERATION OF THE AORTA.

A mason came in 1866 into the ward of Professor Skoda for some passing affection. In the course of his physical examination of him, Dr. Schrötter, Dr. Skoda's assistant, was led, by certain peculiarities which he found, to the above diagnosis, in which Professor Skoda coincided. We were enabled, by the kindness of Dr. Schrötter, to see the man recently, and now give the points in the case as they exist at the present time.

The subject of the supposed malformation is a strong healthy man of twenty-eight, who works hard all day at his trade, and is able to lift heavy stones, or go through any exertion without fatigue or the slightest distress. On stripping his chest, the first thing noticed was a tremendous heaving apex beat in the sixth intercosted space, two inches outside the left nipple, evident equally to sight and touch. Percussion showed considerable extension of normal cardiac dullness toward the left. At the apex both sounds were healthy on auscultation. At the third right intercostal space could be heard a loud, rough, systolic murmur, while the second sound was sharp and clear. At the same spot a systolic thrill could be felt on palpation, and a slight heaving of the skin over the space could be seen on looking along the surface of the chest. There were no other auscultatory phenomena. On now examining the radial pulse, it was found to be full and strong, but very slow—only 48 per minute, and Dr. Schrötter said that it ranged normally from 44 to 50. The abdominal aorta could not be felt by deep pressure. In the femoral artery of both sides the pulse was very feeble, and distinctly retarded when compared with the radial.

No enlargement of the superior epigastric branches of either internal mammary artery or of the epigastric artery itself can be detected. In the left axilla can be distinctly felt a large pulsating vessel, running almost vertically from above downwards. This is probably an enlarged long thoracic artery. On the right side a similar enlargement does not exist. On the back, between the bases of the scapulæ and the vertebræ, more developed on the left than right side, are two bundles of enlarged vessels, which are evident to the eye, and can be felt pulsating. There can be little doubt that they are branches of the posterior scapular artery, carrying blood into the intercostals; other possible enlarged anastomoses, between branches of the subclavian and axillary arteries and the arteries in the lower part of the body, cannot be made out.

From what has been previously stated it will be seen that we have evidence here—1. Of hypertrophy of the left ventricle to a high degree, indicating an obstacle somewhere in the course of the aorta. 2. Of a diminished blood-stream through the aorta and its branches, below the origin of the left subclavian; and of a retarded pulse, showing that the blood takes a perceptibly longer time to get into these vessels at each systole than into the subclavians. 3. Of a normal pulse in the subclavians, and also, it should be added, in the carotids; an indication that the obstacle, whatever it is, lies beyond their origins. 4. Of a compensatory enlargement of certain branches of the subclavian and axillary arteries communicating with arteries which supply the trunk. 5. Of absence of all signs of heart disease, dyspnœa, palpitations, &c., which probably would not be the case if it were the aortic valves which are diseased. 6. Of a *stationary* condition of things. The physical signs are the same now as in 1866.

Finally, it seems that no other diagnosis is possible than that of a partial obliteration of the aorta, somewhere beyond the origin of the left subclavian, probably in the descending part of the arch.

There is one point which it is not easy to decide —i.e., the meaning of the murmur in the third intercostal space. Professor Skoda considers that it indicates an enlarged internal mammary artery; but then, why are its abdominal branches and the inferior epigastric artery not enlarged? Dr. Schrötter looks upon it as due to an aneurismal dilatation of the aorta behind the point of contraction, such as would be most likely to follow in the presence of the existing ventricular hypertrophy.

It would be only speculation to consider what further enlarged anastomoses exist in this case. That the compensation is in some way or other made complete is proved by the fact that the man's feet and legs are never cold.

CHARITE HOSPITAL, BERLIN.

BRIEF MEMORANDA ON TREATMENT.

(*Communicated by* Dr. Spencer Ferris.)

Ileo-Typhus.—Traube distinguishes two stages in this disease. The first, which lasts about fourteen days, is characterised by swelling and ulceration of Peyer's patches. The second, which immediately follow, is marked by the process of sloughing; it is indicated by a morning temperature of normal, or less than normal, height, and a very high evening temperature. In the first stage the treatment consists of aqua gummosa and milk and soup diet. In the second stage excitants and stimulants are given; Rhine wine is the stimulant always used—never brandy. When the temperature rises to 40° C. (104° F.) Celsius' ice-bag is placed to the head. The mortality from this disease is not more than three or four per cent. Dr. Vreuzler states that out of the last 123 cases not more than 4 deaths have occurred. This appears to indicate that at Berlin the disease is of a mild character. In the same affection Frerichs gives no alcohol, and not always wine, but as much beef-tea, eggs, and milk as the patient can take, with nitric and muriatic acids. In hæmorrhage from the bowel he gives a quarter of a grain of acetate of lead, or a dose of tannin or sesquichloride of iron, with the addition of an ice-bag. Frerichs has also treated a few cases both of typhus and typhoid by baths and wrapping the body in cold cloths.

Acute Rheumatism.—Traube says that in persons under twenty-five, endocarditis, pericarditis, or some form of heart disease almost always takes place; between twenty-five and thirty cardiac complication is not unfrequent, but that in those over thirty it is very rare. It may become developed, he says, whether the patient be in hospital or not. This is contrary to the experience of Dr. Gull, who says, in one of the "Guy's Hospital Reports," that if it is not established before the patient's admission, it does not come after. Traube envelops the limbs in flannel, never in cotton-wool; in light cases his treatment is entirely expectant. When limbs are much swollen, large blisters are used; in severe cases, where there is not much swelling, antiphlogistic remedies are employed. Frerichs gives half a drachm of iodide of potassium in the day, and when there is bad pericarditis or pleurisy he lays the ice-bag over the chest, as he says it eases the pain. He also gives infusion of digitalis. The ice-bag is especially resorted to when, with endocarditis, there is great excitation of the heart's action.

Pleuro-pneumonia.—Traube gives citric acid and aqua gummosa, warm applications, and in very bad cases takes blood from the arm. He finds that wine is very badly borne, and never gives it. His mortality is very small.

Peritonitis.—Traube rubs in a scruple of mercury ointment daily, till the mouth is affected, gives no opium, and allows the bowels to act when they will. He occasionally employs warm applications and leeches. He pursues the same treatment for puerperal peritonitis, in which his mortality is not more than twenty-five per cent. He distinguishes two kinds of puerperal fever, the "peritonisch" and the "phlebitisch"; the former he treats by innunction, as above, and the latter by quinine and tonics.

A Case of Ileus.—The bowels had not been open for nine days, and the patient experienced great pain in the bowels, and could not lie still. Traube gave him ice to suck constantly, and he had as much ice-water as possible injected up the bowel. But these measures had no effect, and in three days an artificial anus was made in the right inguinal region. Three days later the patient was going on well.

A Case of Trichiniasis.—The first symptom was œdema of the eyelids and face, then pains in all the muscles and joints, followed by stiffness of all the joints, and then came contractions of the joints and a flabby swelling of the muscles, with high fever and high temperature. The treatment consisted in friction of the limbs with bay salt. Patients generally remain in the hospital six or eight weeks for this disease. As the malady recedes, the muscles often shrink and waste. Traube finds it of little use to cut out a piece of the muscle and put it under the microscope by way of aiding the diagnosis; for it is seldom that trichinæ are found in such a piece, although the body after death may be found to be full of trichinæ. Other reasons against the proceeding are that the wounds made in people with this disease heal very badly, and if the patient does not regain full use of the limb the unfavorable result will be ascribed to the puncture.

Medical Societies.

SEPTEMBER—OCTOBER.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Mr. Curling, F.R.S., President, in the Chair.

ON PARTIAL ACUTE IDIOPATHIC CEREBRITIS.

BY CHARLES ELAM, M.D.

This paper was intended as a continuation of one on General Acute Cerebritis, showing some remarkable points of contrast between the two affections, which are so closely allied pathologically, and yet differ so completely in a clinical aspect, the most noteworthy feature of difference being the far greater severity of the symptoms in the local and limited form of the disease than those of the universal inflammation.

The author referred briefly to the description given of general cerebritis, and showed that, although the anatomical characters of the cases were in some respects different, yet they were all true cases of inflammation of brain-substance, uncomplicated with meningitis, the differences arising from the varying periods at which death occurred.

The annexed table indicates the chief differences between the general and the partial form of cerebritis, clinically considered. Amongst special symptoms, it was noticed that in general cerebritis the pulse was unaffected at the commencement; whilst in partial cerebritis it began with extreme depression, followed by great rapidity and subsequent irregularity. The tongue is much less affected in the general than in the partial form, and the organic complications are much more aggravated and numerous in the latter.

The most striking feature in the history of partial cerebritis is the occurrence of remissions in the course of the disease, often so marked as to simulate restoration to health. This was illustrated by some cases both of constitutional origin and arising from external violence. In two of these, where the patients had been for some time apparently moribund, there was so entire a remission of all the symptoms that for some hours nothing could be detected indicative of any disease whatever. One was a case of fracture of the skull, where there was a fissure extending from the middle of the left parietal bone down to the foramen magnum. This kind of remission, combined with the previous history, was shown to be characteristic of this disease, and to distinguish it from all others.

The diagnosis of this disease is not difficult. It differs from the various forms of "softening" clinically, as thus: 1. From the apoplectic form, in the absence of aphasia and paralysis, as well as other general features of progress. 2. From the convulsive form, in the absence of epileptiform attacks at the beginning, and the greater constancy and duration of the convulsions when established later on in the affection. In this disease, also, convulsion lasts to the end; whilst in softening death is generally "tranquil and peaceful." 3. From the delirious form, by the mode of invasion, which is never by delirium; and by the less marked character of this symptom throughout.

The pathological features also differ materially. From white softening, the color alone is a sufficient distinction from the "red" and "yellow" forms. Besides many other important differences, the section is distinctive, being depressed in partial cerebritis; very often elevated, as though swollen, in softening.

The general aspect of the disease makes it most liable to be confounded with typhus. From this it is distinguished by the mode of invasion, and the marked preponderance of active brain symptoms.

The etiology of this disease is closely allied to constitutional cachexiæ, chiefly of a tubercular nature, and to hereditary predisposition.

The prognosis is very unfavorable; but there are considerations, both of a clinical and pathological nature, that lead to the conclusion that it is not always fatal.

In treatment, although little can be done of a *curative* nature, there is a fact which is occasionally of the highest importance to remember. For business or family reasons it is often especially desirable to obtain a few hours of clear intelligence. This occurs in the remissions already referred to; and the practical point in question is this—that this remission may be often ensured in the early and middle stages of the disease by the exhibition of a smart purgative, as a drop of croton oil, with or without a few grains of calomel. It has little influence on the general progress or ultimate issue of the disease; but the effect for the time is frequently marked and unquestionable.

Tabular view of the contrasts between General and Partial Acute Idiopathic Cerebritis.

GENERAL CEREBRITIS.	PARTIAL CEREBRITIS.
1. *Complications.*	
Described as inflammation of the brain-substance alone, the meninges being unaffected.	Never confined to the brain-substance alone. Meningitis, local or general, always present.
2. *Extent.*	
Extending through the whole substance of the encephalon except the meninges.	Partial; generally a small patch, limited to a portion of one side; usually superficial.
3. *Period of life.*	
Occurs usually between the ages of eight and thirty, never after thirty-five.	Rarely, if ever, occurs before the age of forty.
4. *Mode of invasion.*	
By vomiting.	By fainting, or a very slight apoplectiform seizure.
5. *Termination.*	
Always in death.	Very fatal, but perhaps not so uniformly so as the "general" form.
6. *General symptoms: duration and progress.*	
Symptoms comparatively mild, and wanting in general significance. Progress uniform and uninterrupted from commencement to death, which occurs between the second and twelfth day.	Symptoms most varied and severe. Progress never uniform, but broken by remissions, sometimes so complete as to simulate perfect restoration to health. Duration from three to six weeks.
7. *Prodromata.*	
None.	Always present;—sometimes of a somatic, sometimes of a psychical order, or both.
8. *Paralysis.*	
Generally none.	Some marked weakness, but variable and dubious.
9. *Convulsions.*	
None, until very near the close.	Always present, at some, and generally at an early, period of the disease; persistent to the end.
10. *Coma.*	
Only occurring at the close of life.	Occurs early, sometimes as the earliest symptom; departs and recurs irregularly.
11. *Delirium.*	
Mild and inconstant.	More irritable and violent in character; often muttering; not constant.

After some remarks by Dr. Broadbent,

Dr. Sutton asked Dr. Elam if he had made post-mortem examinations in all his cases of supposed idiopathic cerebritis, and if he examined the internal ears of the patients mentioned in his paper. Dr. Sutton remarked that pathologists generally considered that cerebritis was dependent on some injury to the head, or to disease of the cranial bones, to disease of the ear, or to some pre-existing disease situated either in the brain or in other parts of the body, and that it was not an idiopathic affection.

Dr. Elam replied that he claimed no consideration for these cases, except such as arose from the fact that they were drawn from the life, and from death. Cases of a similar nature, about twelve or upwards, had been noted, in all of which remarkable intermissions had been observed; but in none to quite the same extent. In relating the cases, the absolute phenomena had been stated, and afterwards contrasted with those that were found described in our systematic treatises on affections of the brain. Hence arose the diagnostic marks that had been quoted as distinguishing between the affection under consideration and the various forms of softening of the cerebral substance heretofore described. In reply to another question, Dr. Elam stated that he had not been in the habit of investigating the internal ear in these cases.

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CLINICAL SOCIETY OF LONDON.

Dr. W. W. Gull, President, in the Chair.

Mr. Holthouse read a paper "On Cases illustrating the Treatment of Temporarily Irreducible Hernia." Having expressed his entire concurrence in the doctrine that there was no remedy for an invincibly strangulated hernia but the surgeon's knife, he related several cases to show that many herniæ, though accompanied by symptoms of strangulation, were not invincibly strangulated, and might be reduced without resort to an operation. The remedy which he had found of much service in overcoming obstructions which were not invincible, was opium; and this drug had the further merit of being a very delicate and safe test of the necessity or otherwise of an operation—a single dose was sufficient to determine the point. If it were rejected, the patient should be immediately got under the influence of chloroform, a gentle attempt made to reduce the hernia by the taxis, and, this failing, herniotomy performed; on the other hand, if the opium were retained the symptoms would abate, the rupture would go back and no operation would be necessary.

Mr. Cooper Forster, in commenting on the enormous range for discussion opened out by these notes, denounced energetically the opium and other temporising lines of treatment, and maintained that if a more speedy recourse than is usual was had to the knife, the mortality in these cases would be reduced at least 80 per cent.

Mr. Tait urged the employment of hypodermic injections of morphia, in conjunction with chloroform and the taxis.

Dr. Anstie read a remarkable case of Neuralgia in all the three branches of the fifth nerve, reinduced, in a person who had suffered from it before, by the intercurrence of constitutional syphilis. The complications were remarkable: there was complete anæsthesia of the affected side of the face, exactly reaching the mesial line, complete paralysis of the third and sixth nerves, loss of taste in the neuralgic half of the tongue, loss of smell on both sides, and spasms of the masseter muscle. The neuralgia and the anæsthesia were rapidly cured by large doses of iodide of potassium, and, singular to say, not only the function of taste, but also that of smell, recovered *exactly pari passu with the recovery of the fifth nerve.* The ocular paralyses remain at present unaffected. The spasm of the masseter disappeared simultaneously with the neuralgia and anæsthesia. The woman, who was married and had three very healthy children, and had never aborted, was probably only syphilised about one year ago, and many years after the first attacks of neuralgia, which partook of the character of migraine.

Dr. Hughlings Jackson remarked on the great interest of Dr. Anstie's observation on the occasional coincidence of facial neuralgia with partial anæsthesia of the painful region. He (Dr. Jackson) supposed persistent, although partial, loss of feeling must depend on destruction of nerve-fibres, and neuralgia especially if it were paroxysmal, on discharges of ganglion cells connected with intact fibres. An analogous fact was the not unfrequent occurrence of convulsion of muscles which are imperfectly paralysed. Dr. Jackson asked as to the condition of the masseter and temporal muscles. He suggested that the loss of smell might depend on an olfactory neuritis analogous to optic neuritis, and, as bearing on this, asked if an ophthalmoscopical examination had been made. It was certain that severe optic neuritis might exist when sight was unaffected; in some cases of cerebral disease, there was loss of smell with amaurosis from optic neuritis.

Mr. Lawson said that it was rare to find paralysis of the ocular muscle occurring very quickly after syphilis, several years usually intervening.

Dr. Buzzard thought that, considering there was evidence of lesion of the third, fifth, sixth, and probably the fourth nerves of one side, it was easier to imagine that the syphilitic effusion (if such it were) involved also the first pair of nerves than that lesion of one only of the fifth pair caused loss of smell on both sides.

Mr. Carter had seen Dr. Anstie's patient once; he found the ptosis complete, but did not make a complete examination, for which he expected to have had another opportunity.

Mr. Tait asked if any affection of the pupil existed.

Mr. Forster hoped that Dr. Anstie would not add that disease to the long list of results already accredited to syphilis.

Dr. Anstie said that the case was most undoubtedly syphilitic. No doubt twelve months was an early period after infection for tertiary symptoms to appear; but they were unmistakable. As regards the loss of smell, he thought that, supposing it to depend on the lesion of the fifth, there was no impossibility that it should occur on both sides. Although the neuralgia was unilateral, many equally singular anomalies occurred among the complications of neuralgias. He had not examined the eye with the ophthalmoscope, as it seemed that the function of the retina was perfect; had he known of the facts observed by Dr. Jackson he would have made the examination.

Dr. Hughlings Jackson gave particulars of a case of Right Hemiplegia, with Loss of Speech (nearly complete aphasia), which had been investigated by himself and Mr. Stephen Mackenzie. The hemiplegia, with the affection of speech, pointed to some kind of disease of, and of the convolutions near to, the corpus striatum. From the manner of onset, and from other circumstances, he inferred that there was softening from thrombosis; and as the patient presented well-marked external signs of syphilis, he supposed the softening depended on thrombosis of an artery which was diseased from syphilis. He did not speak of atheroma (endarteritis), which was believed by some to be an occasional result of syphilis, but of what may be called nodes of arteries (gummatous affections). He alluded to the observations of Bristowe (Pathological Society's Transactions, 1859) on thrombosis of cerebral arteries from syphilis, and those of Wilks (Guy's Hospital Reports, 1863) and Moxon (ibid., 1867-8) on cases of syphilitic disease of cerebral arteries, and referred to several cases published by himself (THE LANCET, 1866, and London Hospital Reports, vol. iv.) He urged the great importance of recognising that many "syphilitic affections" of the nervous system are really dependent but very indirectly on *syphilitic* changes, and especially that in some cases of "syphilitic hemiplegia" the pathological condition of the nerve-centre on which the palsy *directly* depends is like that produced by embolism. We quickly cure recent palsies of cranial nerves from the direct action of syphilis on the nerve-bundles, but to cure certain cases of syphilitic hemiplegia we have to do more than to treat syphilis, and our treatment of these cases is often unsuccessful.

The President considered the case very important, and remarked parenthetically that iodide of potassium has no power to cure the effects of syphilis.

Mr. Carter related an instance that had come under his own observation in which the patient had been treated for syphilis with iodide of potassium with benefit; but hemiplegia supervened, and from that time the drug did no good.

Dr. Anstie had prescribed half-drachm doses of iodide of potassium for neuralgia with particularly favorable results.

Mr. Callender then read a note on a plan of Reducing Old Dislocation at the Shoulder. The method, illustrated by the history of a case, consists in raising the elbow of the dislocated limb across the chest nearly to the level of the interclavicular notch, forcing the raised arm outwards, rotating the arm in so doing, and lastly, whilst still rotating, somewhat depressing it. Practically this plan of manipulation avoids all risk of injuring the great vessels in the axilla, as all pressure upon them is done away with.

Editorial.

THE RELATION OF MUSCULAR FORCE TO EXERCISE.

OUR attention was called some time ago to certain experiments undertaken by Dr. Flint, of New

York, on the person of a well-known pedestrian, Mr. Weston, with a view of obtaining some information with regard to the effects of exercise on the metamorphosis of muscular tissue. A much more favorable opportunity of pursuing these investigations recently presented itself in the case of the same gentleman, who undertook for a wager to walk the prodigious distance of 400 miles in five days, and on one of these days to walk 112 miles in twenty-four hours. On the present occasion Dr. Flint was fortunate enough to obtain the assistance of an excellent staff of coadjutors in carrying out a plan that was most carefully laid down before the trial began, and Mr. Weston good-naturedly lent all the aid in his power to render his severe undertaking trustworthy as a scientific experiment. The observations were made during three periods—namely, for five days before the walk, for the five days of the walk, and for five days after the walk. Each day, as nearly as possible at the same hour and under the same conditions, the naked weight, pulse, respiration, and temperature were taken. Mr. Weston made his own selection of food, both as to quantity and quality; the weight being ascertained by supplying a known quantity and weighing the remainder, so that there was no kind of restriction exercised. The urine and fæces were carefully analysed, with a view of determining the amount of nitrogen eliminated. The analyses were made by Mr. Loew under the superintendence of Mr. Doremus. It may be as well to state that Mr. Weston lost his bet, accomplishing only 317½ miles in the five days—namely, 80 miles on the first day, 48 on the second, 92 on the third, 57 on the fourth, and 40½ on the fifth. Mr. Weston can scarcely be said to have pursued any fixed plan of training. He drank no alcohol and did not smoke during the walk. He is a man of slight build, with powerfully developed extensor muscles of the thigh, small calves, and well-made, highly arched feet. His condition does not appear to have been first-rate at starting, as we are told the urine he passed was loaded with crystals of oxalate of lime, and that he exhibited great sensitiveness to disturbing things during the whole of the walk; and we can scarcely imagine anything more unfavorable to the success of a great feat of pedestrianism than that it should be performed by monotonously walking round and round a building as large as Westminster Hall. The immediate cause of the failure appears to have been want of rest and sleep on the second day, producing extreme drowsiness and vertigo on the third and fourth days, from which he partially recovered on the fifth. During the walk he lost 3·450 lb., and eliminated 633·80 gr. more nitrogen than he consumed. The question is, In what did the loss represented by these figures consist? An attentive consideration of the analyses and tables given by Professor Flint, which are very numerous and lucidly arranged, inclines us to support the conclusion at which he has arrived—that excessive and prolonged muscular exertion increases enormously the excretion of nitrogen, and that the excess of nitrogen discharged is due to an increased dissimilation of the muscular substance; in other words, that during muscular effort muscular substance is used up. This view is strongly supported by the fact that for the five days prior to the walk the elimination of nitrogen by the urine and fæces (which Dr. Flint estimates at 95 per cent. of the whole quantity excreted) amounts to 89·49 parts for every 100 introduced by the food; whilst during the walk, for every 100 parts of nitrogen introduced, no less than 235·63 parts were eliminated; and for the five days after the walk the average amount excreted was 91·93 parts for every 100 parts, the weight at the same time quickly regaining its normal standard. The excess during the period of violent exertion would, viewed in connexion with the loss of weight, probably comes from the muscles—though partly also from the nervous system. His temperature failed considerably on the first day, being about 4·3° Fahr. below the average, and remaining lower throughout the walk. There did not appear to be any relation between the amount of exercise and the amount of uric acid discharged. There was an increase of 50 per cent. in the phosphoric and 30 per cent. in the sulphuric acids during the walk, as compared with the previous period of rest. The chloride of sodium, on the other hand, was diminished during the walk.

Dr. Flint's able and most interesting paper is published as a separate pamphlet, but may also be found in the June number of the *New York Medical Journal;* and we commend it to physiologists as being well worthy of close attention from the precision of its details and its important bearings on an obscure and difficult department of inquiry.

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THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE GRAAFIAN FOLLICLES OF MAN.

Dr. Kronid Slavjansky contributes a paper on the Normal and Pathological Histology of the Graafian Follicles of man to the last part of Virchow's *Archiv* (Band li., Heft. iv.) His observations have been made on subjects of all ages brought to the Anatomical and Pathological Institute of the Medico-Chirurgical Academy of St. Petersburg. The preparations were macerated immediately after removal from the body (which was usually effected in from three to eight hours after death), for a week or a fortnight in Müller's fluid, then placed in a 70 per cent. solution of spirits of wine, and then in a 90 per cent., after which fine sections were made. In the examination of the ovaries of children he recognises three forms of follicles—(1) primordial follicles, which are the youngest; (2) a transitional form to the mature follicles; and (3) more or less developed mature Graafian follicles.

The primordial follicles are of roundish or elliptic form. They consist of the primordial egg, with the yelk, the germinal vesicle, and germinal spot surrounded by a series of small round cells in contact with one another, and without any intermediate substance. In very young follicles a spot can always be found where these cell-series are interrupted, and where the egg apparently is in direct contact with the wall of the follicle. This is the follicle-pole of Pflüger. At a subsequent period this spot is covered by a layer of cells. The wall of the follicle presents no characters distinguishing it from other parts of the ordinary stroma of the ovary. On its inner surface, however, he admits the presence of a lustrous layer, similar to that found in acinous glands, in which sometimes a few fusiform cells may be discovered, and thus differs from Waldeyer, who in his description of the structure of the primordial follicles states that they are destitute of a membrana propria, and that the stroma tissue lies in immediate contact with the contents of the follicle, the fibres being arranged circularly around it. Thus it appears that in the very youngest follicles the egg is surrounded by a series of epithelial cells representing the future membrana granulosa. The delicacy and instability of these cells explain the circumstance of their being denied by Klebs, Schrön, and Florinsky. Such follicles as those that have just been described may be seen in certain parts of the ovary, at every age from the eleventh week of intra-uterine life to the grand climacteric. In embryoes they are usually found between the cortical and medullary layers; in new-born children they are found in all parts; in adults they are met with only in the most superficial layers of the cortex, where they are closely packed, and when badly prepared, in consequence of the destruction of the epithelium, look like rows of large cells from which, near the centre of the ovary, the follicles appear to develop. Slavjansky accepts and corroborates Waldeyer's description of the origin of the primordial follicles from tubes. He describes a somewhat complicated histological process in which the follicles undergo a physiological destruction; this commences with a fatty degeneration of the follicular walls, and proceeds with contraction of the cavity till it is completely obliterated. The young tissue by which this obliteration is effected is considered by M. Slavjansky to proceed from the white corpuscles of the blood. In regard to the formation of the corpus luteum (verum and spurium) he concludes that in this process only the so-called granulation-layer of the follicular wall is active, the membrana granulosa undergoing fatty degeneration and atrophy. In conclusion, he describes the pathological conditions of the ovary, with the exception of dropsy of the Graafian follicles. He divides them into affections of the parenchyma, and affections of the wall of the follicle. The former are included under the heads of fatty metamorphosis and colloid metamorphosis; the latter he considers may be embraced under the general head of sclerosis.

Medical Annotations.

"Ne quid nimis."

FEMALE STERILITY.

A VALUABLE paper on the Pathological Conditions causing Sterility in the Female, founded on clinical observation, by Joseph Kammerer, M.D., appears as Part VII. of Vol. III of the Transactions of the New York Academy of Medicine. Dr. Charles Mayer, of Berlin, made a similar contribution to the elucidation of this important subject in 1856. He published the particulars of 272 cases observed by him. Among these he found 2 without uterus, 60 with anteflexions, 37 retroflexions, 35 anteversions, 3 retroversions, 45 cases of vulvitis, and among these 14 with an entire hymen after several years of married life, 51 cases of chronic endometritis, 25 cases of oophoritis, 23 with ovarian tumours, 12 with uterine polypi, 6 with fibroid tumours of the uterus, and 1 case of elephantiasis of the external genitals, while in 6 cases no pathological condition could be found.

Dr. Kammerer points out the importance of observing functional derangements as well as actual lesions, and of paying attention to the subjective symptoms complained of by the patient. Some patients complained only of their sterility; others ignored this, and complained of various functional derangements, chiefly of menstruation, nervous disorders, disturbed digestion, and painful sensations in different parts of the body. Thus the subjective symptoms which induced patients to seek for medical advice are recorded as follows: Dysmenorrhœa, 69; menorrhagia and metrorrhagia, 57; scanty menses, 41; premature cessation of menses, 4; never menstruated, 2; retarded menses, 8; habitual miscarriage, 3; hysteria, 16; nervous headache, 3; vaginismus, 2; intercostal neuralgia, 1. The anatomical conditions found upon examination are thus related, under the following heads:—

1. *Anomalies of position.*—Retroversion, 20; anteversion, 18; dextroversion, 10; sinistroversion, 10; descensus, 8; prolapsus, 1.

2. *Anomalies of uterine tissue.*—Anteflexion, 83; retroflexion, 71; hypertrophy of uterus, 65; atrophy of uterus, 3; atrophy of cervix, 1; infantile uterus, 2; small os, 24; stenosis of the entire cervical canal, 11; stricture of internal orifice, 35; fibrous tumours in walls of uterus, 10; carcinoma, 5; polypus, 6.

3. *Catarrh.*—Of the whole number of 408, 342, or about seven-eighths, were affected with uterine catarrh. In the majority of the cases the catarrh was limited to the cervical canal. But where there

was flexion of the body of the uterus, or stricture of the canal, the dilated cavity of the body was the seat of active hypersecretion.

4. *Affections of organs in proximity to the uterus.*—Cases of acute or subacute perimetritis, or peritonitis, 12; firm adhesions from previous attacks of peritonitis, 83; ovarian tumours, 14; periuterine tumours, with undefined seat, 7; gonorrhœa, 2; acute colpitis, 1; pelvic abscess, 1.

5. *General conditions and accidental diseases.*—Among these, worthy of remark, were secondary syphilis, 8; valvular disease, and hypertrophy of heart, 5; tuberculosis, 4. In hospital practice only 3 cases were cured. In private practice, out of 201 cases, 25 are put down as having afterwards given birth to full-grown children; 100 were subjected to no treatment, either from unfavorable prognosis, or from want of faith in treatment on the patient's part; 25 still remained under treatment. The most favorable results were attained in cases of flexion, especially retroflexion, and in cases of cervical catarrh. The most unfavorable cases were those of extensive adhesions, of anteflexion, or of small external orifice. Dr. Kammerer had abstained from using the knife in cases of constriction of the external os, trusting to dilatation, which, however, he thinks not so successful as in cases of stricture of the internal orifice. For the catarrh, local applications of nitrate of silver, or injections of compound tincture of iodine, and dilute carbolic acid, strength not stated, were used.

We offer our thanks to Dr. Kammerer for his trouble and care in collecting and reporting facts so well fitted to illustrate an important subject.

THE ADULTERATION OF FOOD.

The question of the treatment that is due, and that in some places is even meted out, to the persons who deliberately adulterate food and drink, was brought before the Social Science Congress by Mr. Phillips Bevan, whose position as Editor of the *Food Journal* peculiarly qualifies him to stand between the public and dealers by whom they are systematically plundered. Mr. Bevan conceived the idea that it would be useful to lay before his readers an account of the ways in which adulteration is practised, and also of the penalties with which it is visited in foreign countries; and he sought permission from the Foreign Office to address inquiries under Government sanction to the British Consuls and Vice-Consuls in all parts of the globe. The late Lord Clarendon not only assented to this request, but even did more than he was asked to do. He suggested that Mr. Bevan should frame his inquiries, and undertook that the Foreign Office should send them out, and should collect the replies. The lamented death of Lord Clarendon did not interrupt the work, to which Lord Granville has in turn given his cordial approval; and answers are now being received regularly, and the substance of them stated in the *Food Journal* month by month. If our grocers and brewers and bakers and dairymen peruse these answers, they will doubtless at first congratulate themselves on living in a country where adulteration finds shelter under the specious semblance of free trade. But we trust that any bliss of this kind will be only of brief duration; and that the knowledge that those who deal in adulterated articles are liable to severe penalties in nearly every country but our own, may make our legislators question the wisdom of their masterly inaction in times past, and prepare them to devise some means of remedying the evil for the future. Adulteration involves far more than any question of mere nastiness or depreciated value, although under these aspects alone it is a matter of no small moment. Mr. Bevan justly observes that the argument is worthless which maintains that people bring adulteration on themselves by buying very cheap articles, so cheap that they cannot be genuine. In most cases the retail buyer has no notion of the wholesale value of genuine articles, and he therefore buys in ignorance. "No cheapness would tempt him," says Mr. Bevan, "if the seller were compelled to label his mixtures with the names of the ingredients—such as 'best butter, mixed with starch, mashed potatoes, and horse-bone oil'; 'coffee, with bread-crumbs, and sand'; 'tea, with iron filings'; 'sugar, with chromate of lead'; 'beer, with salt and cocculus indicus'; and the like." The matter may be carried even further than this. We have been lately staying at an hotel in which there was no pretence of cheapness, but in which the so-called food was simply poison. Every meal of which we partook there contained ingredients which passed rapidly into acrid decomposition, and occasioned most painful and depressing dyspepsia. It was very sad to reflect that an innkeeper, for the sake of three-halfpence (which we set as the possible profit on the adulteration in each transaction) should calmly and deliberately poison an unoffending fellow-creature, who had done him no harm, and against whom he could have had no possible malice. As far as we could discover by experiment, our sufferings were chiefly traceable to the articles that were respectively sold as coffee, soup, and sherry; and we are glad to record that the host did not profit by his practices, since, after two day's experience, we only slept in his house, and took our meals elsewhere. Against such practices individuals are powerless to protect themselves; and we heartily trust that Mr. Bevan's labors may in time procure for the public the protection of the law.

KOUMISS.

To many of our readers the name, nature, and composition of koumiss will be perchance unknown. Koumiss is prepared from mare's milk, a beverage which the nomadic tribes of Bashkirs and Tartars drink in a state of fermentation. Dr. Victor Jagielski, late a physician of the Prussian army, has been led to consider, in common with many physicians of Russia and Germany, that the popular belief of these people, which ascribes their exemption from consumption, bronchitis, and other diseases to the almost exclusive use they make of koumiss, has a considerable foundation in fact. One of the first persons to direct attention to koumiss as a dietetic and therapeutical agent was a Dr. Grieve, F.R.S. Ed., who held the post of physician to the Russian Army. The best koumiss is manufactured in the goverment of Orenburg, especially on the large estates of Istchoff, in the village of Kilimow, in the district of Beleber.

Koumiss institutions, supported by the Imperial Government of Russia, are now existing in Samara, under Dr. Postinkoff; in Odessa, under Dr. Levenson; and in Moscow, under Dr. Stahlberg. These establishments are preparing their koumiss from mare's milk; but within the last ten years institutions have been founded nearer to the centre of Europe, where koumiss is prepared from cow's milk, as in Warsaw, under the management of Dr. Przystanski. In St. Petersburg, and many other towns of European Russia, there are also institutions where koumiss is prepared from cow's milk by workmen brought expressly from Tartary, as well as in Charlottenberg, near Berlin, and in Ottenstein in Saxony.

Drs. Lersh, Schwepp, With, and Stahlberg, give a favorable opinion as to its effects as a remedy. When a Russian physician advises his patient to take koumiss, the latter at once conceives the idea that he suffers from consumption; and in fact the belief in the power of koumiss in this disease is said to have taken such root, that patients use it of their own accord, without any appeal to medical advice.

Dr. Jagielski's object in publishing his pamphlet is to get the properties of this remedy tested in this country. The chemical changes set up in the preparation of koumiss arise out of the milk-sugar by its fermentation into alcohol, carbonic and lactic acids. The trial of this agent at the Bromptom Consumption Hospital has been too limited to warrant any decided opinion as to its value; but, if we may judge from the highly favorable opinions entertained of its virtues by various physicians abroad, it seems deserving of attention in this country.

Maclay, the Russian zoologist, who has travelled in Tartary, and is conversant with the use of koumiss in those districts where it is constantly employed, speaks of it as a dietetic and restorative agent of great value. We should be glad to see an extended trial made of this agent at some institution in England; but the difficulty is that it is almost impossible to separate the effects arising from the improved diet which phthisical patients receive in hospital from those of remedial agents.

THE MODE OF TERMINATION OF NERVES IN FISHES.

M. Jobert and M. Grandry have recently communicated to the Society of Biology (*Gaz. Méd. de Paris*, No. 10, 1871) the results of their inquiries upon this subject, which were chiefly conducted on river fish, and especially upon the carp, the lips being the part selected for examination. The lips are covered by several layers of epithelium, of which the deepest are elongated and arranged in the form of palisades in close order. Above these is a layer of rhomboidal form, and those that are still more superficial are successively round, and more and more flattened. The flask-like cellules described by Leydig under the name of mucous cells, which secrete in their interior, and by their dehiscence discharge the mucus, covering the surface of fishes, are deeply placed. The simple and compound papillæ of the cutis project into the epidermis, and are hollowed at their extremity into the form of a cup, at the bottom of which is an ovoid organ that on account of its peculiar shape has been named the "cyathiform" organ by Leydig. Each dermic papilla contains a vascular loop, and two nervous fasciculi that run towards the apex. At the level of the bottom of the cup the nerve-tube disappears. These nerves, as shown by the action of perosmic acid, contain the white substance of Schwann. In specimens macerated in weak chromic acid the bottom of the papillary cup may be seen to contain a granular substance, amongst which highly refractile nuclei are scattered. In almost all instances, part of the epidermis and cyathiform body disappears after maceration, showing that this consists of two very different elements. The cells of the periphery already figured by Leydig are fusiform, with a nucleus at their upper extremity; and he supposes they are contractile, with which statement, however, the authors are unable to agree. These cells are inserted into the border of the papillary cup by a finely dentated insertion. The granular mass contained in the cup formed of nuclei becomes transformed into fibrils, from which extremely fine and highly refractile filaments are given off. These constitute the second element, or central portion, of the cyathiform organ; and it is this which the authors regard as the true termination of the papillary nerves. The peripheric element they consider to be only protective, and as belonging to the epithelium. It is important to notice that the superior portion of the cyathiform body traverses the epidermis, and is in immediate contact with the surrounding fluid, and this may, in fact, be seen scattered over the surface on a flat view. M. Jobert continued his researches at Acrachon on the Mullus barbatus, or mullet of the ancient Romans, employed to make the *garum*, and the death throes of which were watched with pleasure on account of its brilliant and changing colors. In this fish the cyathiform bodies are very large, amounting to one-tenth of a millimeter, and the structural characters above described are more clearly visible. Section of the nerve alters the structure of the cyathiform body.

THE TREATMENT OF DRUNKARDS.

An article in a recent number of *Macmillan's Magazine* gives an interesting account of one of the asylums for drunkards of which several have been founded with great success in America. The American laws, more paternal than our own, recognise the necessity for guarding the habitual drunkard against himself, and do not leave him at large until drink has ended in crime. Thus we find that "the committee of an habitual drunkard, duly appointed under the provisions of the laws of the State, can place such habitual drunkard in the asylum, and authorises his detention under such restraint as may be necessary to prevent his escape." A large proportion, however, of the inmates of these asylums are voluntary patients who place themselves there with a view to self-cure.

The New York State Inebriate Asylum has been in active operation since May, 1867. From that date to the end of 1868 the number of admissions was 310; 272 being paying patients, and 38 free. Of these patients, 147 were classed as periodical and 163 as constant drinkers, and the following were their antecedents: 96 had delirum tremens, 31 convulsions, and 73 other diseases; 101 were in good health, and 9 were supposed to have an hereditary tendency to intemperance. The average length of time each patient remained in the asylum was ninety-six days: 113 were reformed after a first trial; 11 relapsed, but were reformed after a second trial; whilst 4 relapsed a second time, but were reformed after a third visit; 25 were discharged hopeless; and of the remainder, in 68 the result was not known, whilst 3 were discharged insane and 4 died.

The asylum is described as a palatial hotel, situated on the top of a hill, with commanding views. No special treatment is adopted beyond a total disuse of intoxicating liquors, and restraint within the boundaries of the establishment is only moral. The patients breakfast at 8 A.M.; attend prayers, and then amuse or employ themselves as they please till a one-o'clock dinner; supper is served at 6 P.M.; and the evenings are occupied with "readings," dramatic representations, or, on one evening in the week, a lecture on temperance by the superintendent, Dr. Albert Day. No restriction is placed on the use of tobacco, and it is consumed in enormous quantities; coffee, also, is very largely consumed.

Permission to pass beyond the bounds of the asylum grounds can only be obtained from the superintendent, who judges of the amount of self-control acquired. Occasionally a "break-out" occurs, the patient usually returning at the end of his debauch, and being then placed in confinement for a day or two. Dr. Day insists upon the necessity for *total* abstinence after quitting the asylum; and maintains that "he has never known a man who had been intemperate to be able to drink at all without falling again into excess." We echo the wish of the writer in *Macmillan* that institutions of a kind similar to this asylum were established in this country.

RESUSCITATION IN CASES OF SUSPENDED ANIMATION BY HANGING.

AN interesting case of an attempt to resuscitate a criminal who had been hanged, which, if the experiment had been allowed by the authorities to proceed, would probably have proved successful, is recorded in the *Gynæcological Journal* for June of the present year. The criminal, whose name was Skaggs, was hanged at Bloomfield, in America, in the autumn of last year. He was thirty-five years of age, of sanguine temperament, 5 ft. 10 in. in height, and weighed 160 lb. Prior to the execution his health was good. The drop was six feet. The noose was adjusted to the usual place, but slipped, as the man fell, behind the mastoid process. In three minutes all struggles ceased. At the end of four minutes Dr. Robert Jackson, who furnishes the account, perceived a distinct fremitus passing over the region of the radial artery, which entirely ceased at the expiration of six minutes and a half. At the end of four minutes more all signs of life had disappeared, and the body was blue. Dr. Jackson pronounced the man dead, in which opinion he was supported by Dr. McDonald. The body was allowed to hang four minutes longer, in all fourteen minutes and a half since the fall. The corpse was then taken a distance of nearly fifty yards, to a room in the court-house, and placed face upwards on a carpenter's work-bench. The external appearance was unmistakably that of a person dead, the pulse and the heart's action having entirely ceased. The rope had made a deep impression on the neck, and had brought up tumefaction on both sides, which caused the appearance of a depression a quarter of an inch in depth. Examination proved that the neck was not broken. Dr. Jackson and Dr. McDonald then proceeded to the experiment of resuscitation. Divesting the chest of its covering and employing artificial respiration for a few minutes proved of no effect. The poles of a galvanic battery were then placed on the course of the pneumogastric nerves, and strong currents passed into the body at intervals of four seconds; this was soon followed by indications of respiration. The sheriff who had executed Skaggs now interfered, and compelled the operators to suspend their labors for ten or fifteen minutes, during which time the favorable indications diminished. They then resumed the experiment as before, but were again desired to desist. At the expiration of an hour and six minutes after the fall they again went to work, and in a few minutes the action of the heart and of the radial pulse was perceptible. The epiglottis now became swollen, and the tongue had to be drawn forward with the forceps to permit free respiration. A few ounces of blood were then taken from the medio-cephalic vein. The dilated pupils contracted slightly, and signs of life were more marked. The experiment was again suspended during the succeeding thirty-eight minutes, by reason of the wires of the battery being carried off by the sheriff, excepting for a few minutes whilst the current was passed through the arms of the operators. After recovering the wires, and working a short time, Skaggs swallowed a quantity of brandy-and-water. At 113 minutes after the drop slight muscular action was perceptible independently of the battery. The circulation at the extremities was languid, to excite which cayenne pepper and whiskey were employed; sensibility of the cornea appeared. Eighty minutes later the body was again rubbed, and the feet became warm. Pulsation in the carotid artery was then perceptible to the eye. Until seven o'clock, six hours after the execution, all signs of life increased, at which time the pupils began to dilate, and indications of life to decline. The room, it is stated, was crowded to suffocation throughout the experiment. Dr. Jackson then took between twelve and thirteen ounces of blood, of a dark venous color, from the same vein of the opposite side, when the pupils again contracted to nearly their normal size, the pulse assumed a strong and steady action, and the breathing became easier and more regular. He now used the ocular muscles, his eyes following persons around the room. This was most marked at nine o'clock, at which time, by the interference of a mountebank, the opposition of the populace became so violent as to render the further prosecution of the experiment impossible. The man lived till four o'clock the following morning.

The lessons taught by the experiment appear to be—first, that if we desire to extinguish life in a criminal, he should either, as Professor Haughton has shown, be allowed to fall further than six feet, unless he happens to be a Daniel Lambert in point of weight, or made to hang for a longer period than fourteen and a half minutes; and, secondly, the results here obtained give good hope that, by judicious treatment, a considerable number of instances of suicidal hanging, in which case the drop is seldom considerable, might be resuscitated. We should like to have seen appended an account of the post-mortem, and particularly in reference to the question of the condition of the laryngeal and tracheal cartilages.

INFLUENCE OF THE SYMPATHETIC NERVE UPON THE EYE.

Dr. Sinitzin, in a communication made to the *Central-blatt* (No. 11), states that, having studied the effects of ablation of the superior cervical ganglion of the sympathetic nerve upon the eye in a large number of experiments, he has arrived at the following results:—1. Immediately after the ablation of this ganglion, increased vascular injection was constantly observable in the fundus of the eye of the same side. Ophthalmoscopic examination showed that the choroidal vessels had increased in size, that their anastomoses had become much more distinct, and that in general the fundus was of a much deeper red on the operated than upon the sound side. 2. The temperature of the eye of the operated side rose. In the sac of the conjunctiva and beneath the capsule of Tenon the difference in temperature amounted to as much as 0·9° to 2·4° Cent. 3. The cornea of the side operated upon possessed, when compared with the other, a much greater capability of resistance to the action of foreign and neutral substances. If, for instance, a fine spiculum of glass was inserted to an equal depth into each cornea, it always happened that, whilst on the sound side the spiculum excited more or less violent conjunctivitis, pannus, purulent infiltration of the cornea, with subsequent ulceration and ultimate disintegration of the adjoining tissue, or a more or less severe iritis and threatening of panophthalmitis, on the operated side either scarcely any reaction occurred, which was most commonly the case, or at most it was but slight. It was also observable that, as Claude Bernard has shown, the stronger the animal the greater the difference in the temperature, and the sooner after the operation the foreign body is inserted the greater is the resistance exhibited by the sound side. 4. The well-known neuro-paralytic phenomena consequent upon section of the fifth nerve in the skull, immediately in front of the Gasserian ganglion, do not occur if shortly before this operation, or immediately after it, the cervical ganglion is removed. 5. Even when some of these neuro-paralytic phenomena have made their appearance after section of the fifth, ablation of the ganglion will cause them to vanish in the course of a few (two to four) days. 6. Such disappearance is possible so long as the surface of the cornea remains moist and polished; if these conditions have supervened, separation of the epithelium, haziness of the cornea, as well as injection and swelling of the iris, will no longer disappear. 7. The complete atrophy or destruction of the eye consequent upon section of the fifth may still be staved off if the ganglion be removed during the progress of the changes, the conditions present either remaining *in statu quo* or undergoing more or less improvement. 8. The ulceration of the lips, especially of the lower one, following section of the fifth, as well as the ulceration of the eyelids, completely vanish after section of the sympathetic. 9. For the improvement taking place under the four last heads it is not requisite for the animals to have any special protection from injury afforded. In Dr. Sinitzin's opinion, the neuro-paralytic phenomena after division of the fifth occur whether the eye of the side operated on is protected from irritation or not. 10. The diminution of temperature observed by various experimenters on the same side after section of the fifth never occurs when ablation of the sympathetic ganglion has been simultaneously performed. Dr. Sinitzin says that the changes in the circulation appear to be at the bottom of these effects. Ligature of the carotid, or irritation of the depressor nerve of the heart, neutralises the inhibitory effects of the ablation of the sympathetic ganglion upon the neuro-paralytic phenomena consequent on section of the fifth.

MICHEL'S PROCESS FOR REMOVING EXTERNAL TUMOURS.

The preparation used in all cases where the tumour can be reached externally is made in the following way. Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder. It is then mixed thoroughly with three times its own weight of strong sulphuric acid (SO_3HO), and worked into the desired shape with a silver or gold spatula. Mr. Bell remarks that the practical working of this powerful but simple escharotic is very remarkable; it destroys rapidly and completely whatever tissues lie directly beneath it, and in doing so neither causes the extreme pain which might naturally be expected, nor the local inflammation and general feverish symptoms which render similar applications undesirable.

In its application it is requisite that the patient should be so placed that the surface of the tumour is level. The adjoining parts of the skin are to be protected by a broad circle of collodion and a thick pad of soft linen. Nearly the whole surface of the tumour is to be then covered with a layer of asbestos and acid, the thickness of the latter being about half an inch for a tumour the size of a hen's egg; and, to insure that the contact is uniform, the surface of the asbestos is to be covered with sovereigns. The skin beneath the mass is rapidly destroyed, a very narrow white circle marking the separation between the dead and living skin. The pulse remains quiet. The patient complains of considerable pain whilst the skin is being penetrated; it is not unbearable, however, and becomes much lessened after the first twenty minutes. Soon a slight oozing appears at some point from beneath the mass, the careful sopping up of which requires the undivided attention of the operator or experienced nurse for some hours. The length of time required for the destruction of a tumour varies with its size, its nearness to the surface, and the capability of the special tissue to resist the action of the mass; but in one of the size of a hen's egg the first application may be left on from 8 A.M. till 10 P.M., when it may be removed; made up afresh to half the size, and reapplied for the night, being finally removed on the following morning. The wound should appear quite dry, and the darker and more depressed it is the better.

The healing process then alone requires to be attended to, and this is divided by Mr. Bell into (1) the stage of quiescence, (2) the suppurative stage, and (3) the healing stage, for the treatment of each of which minute directions are given. Mr. Bell is quite aware that this plan of treatment will not prevent the return of malignant disease, but he claims for it the following advantages:—1. That the shock of a surgical operation is entirely avoided. 2. That besides the tumour very little of the surrounding parts are injured or removed. And 3. That a malignant tumour when removed by means of the escharotic is not so rapidly recurrent as when it is excised.

Through ill health Mr. Bell has been unable to follow up this mode of operation, and has left its prosecution in the hands of Mr. Henry Robinson.

THE HUMAN VOICE.

The exhibition in London of a machine by which many, if not most, of the sounds of the human voice are imitated, and the recent publication of a little work by Prof. Hullah "On the Cultivation of the Speaking Voice," especially direct attention at the present moment to the subject of vocalisation; and it is remarkable how the machine illustrates the statements of the author.

Mr. Hullah lays down that "besides *pitch*, *intensity*, and *duration*, sound has a fourth property, technically called *timbre*, popularly *quality*;" and again, that "of the four properties of the voice—intensity, compass, flexibility, and *timbre*,—incomparably the most important, *timbre*, depends not on the lungs, windpipe, or larynx, but almost exclusively on the disposition of that portion of the vocal mechanism which is most open to observation and most obedient to the will"—i.e., the mouth. The speaker or singer can observe this on his own person in a looking-glass, and the machine alluded to illustrates the same fact. Thus the removal of the mask or face does a away with the nasal tone required in the pronounciation of French words; and, the true mouth and lips being then exposed, it can be seen that the production of various words depends upon movements of the lips, tongue, and palate, without alteration in the size of the larynx.

Mr. Hullah calls especial attention to the common mistake of the almost exclusive use of the upper "register" or "head voice," which is totally unfitted for public speaking or for any sustained effort. To this, and to the want of practice in the art of speaking, he attributes "clerical sore-throat." As regards the compass of the voice, the axiom is laid down that, "whether of speaker or singer, the part of the voice most softened to be called into requisition, and therefore most important, is that which is *farthest from the extremes*." Valuable remarks are made upon the vocal elements; and the author proceeds to show that, by practising sustained sounds (of which tables are given), the speaker may attain excellence with the same amount of care as does the vocalist. At the commencement of a session, when numerous lecturers are about to begin a six months' course, we would commend Mr. Hullah's little book to their especial notice; and they may find, in its concluding pages particularly, some hints which may make their lectures less irksome to themselves and possibly more interesting to their audiences; at all events they may learn to evade that most trying of all ordeals—a coughing audience.

To return to the very ingenious talking machine. This, it appears, is the original production of Professor Faber, which has been completed by his nephew, the exhibitor. It is not pretended that all the sounds of the voice are produced in precisely the same manner as in the living subject, though most of them are; and it is very interesting to watch the movements of the lips and tongue, and contrast them with one's own organs under similar circumstances. The spectator is well able to appreciate the complexity of even a single word when he notices the numerous levers which Madame Faber has to manipulate *seriatim* for its production. And here appears really to be the difficuty in producing some English words—the want of practice of the performer, who has to learn to speak, as it were, through the machine. As respects the ingenuity of the machine there can be no question, nor can there be the least suspicion of false play, as was the case in the absurd "Anthropoglossus" exhibited some years back.

RECENT OBSERVATIONS ON DIGESTION.

The chemical and physiological conditions present in the alimentary canal are so complex in their nature, that every painstaking inquirer, notwithstanding the frequency with which the ground has been turned, seems to make fresh discoveries, or at least to open up new paths of research. The most recent investigations that have been made are those of Dr. Paschutin, who has had the resources of the excellent laboratory of Professor Setschenow, of St. Petersburg, at his disposal. His researches have chiefly been directed to the determination of the digestive powers of infusions of the mucous membrane of the intestine for albuminous compounds, and on the nature of the ferment converting starch and cane sugar into grape sugar. He states that aqueous infusions of the mucous membrane of the small or large intestine of the dog, when maintained at a temperature of about 100° F., undergo self-digestion, and in the course of three or four hours throw down voluminous precipitates of albumen that undergo no further change till putrefaction sets in, the liquid at the same time altering its reaction from alkaline to acid, and the material, whatever it may be, that is able to reduce oxide of copper, and which is always present in the fresh infusion, disappearing. The infusion of the mucous membrane appears to have *no* power of converting albuminous compounds into peptones, and only a slight power of emulsifying fats. He also found that the secretion of the small intestine obtained by Thiry's method was equally inoperative as regards albumen and fats. The infusion of the mucous membrane of the small intestine, however, can convert starch into sugar. It is curious to notice that this power is possessed also by the mucous membrane of the trachea, urinary bladder, and, though to a less marked extent, by that of the gall-bladder, cæcum, large intestine, stomach, and rectum. None of these, however, can, like the infusion of the mucous membrane of the small intestine, convert cane sugar into grape sugar. This last power he has found to be possessed by the dog, pig, rat, mouse, and rabbit, but not by the membranes of the sheep and cow.

Further investigations enabled him to demonstrate that the infusions of those membranes that can convert starch into sugar and cane sugar into grape, contain *two* distinct ferments, the mode of separation of which would be too long to insert here. The infusion of the muscular layers of the small intestine furnishes the chief part of the ferment capable of converting starch into sugar. A temperature exceeding 104° F. seriously interferes with the action of the ferments. With regard to the saliva, he found that the temperature at which its peculiar ferment, when diluted with ten or twelve parts of water, acts upon cooked starch most intensely is from 100° to 106° F. It is more difficult to determine the temperature at which saliva exercises its greatest activity on uncooked starch; but it is certainly higher than the latter degree. When the ferment is weak it is probably about 144° F.; when concentrated, about 149° F. Dr. Paschutin shows that the admission of air at ordinary temperatures to starch paste speedily causes the formation of a material that is capable of acting as a ferment, and is capable of reducing oxide of copper. Such modified starchpaste can act as a ferment to fresh paste, but the power is destroyed by boiling.

ELECTRO-THERAPEUTICS IN STRICTURE.

Some of our readers may be aware that the application of the galvanic current to the solution of tumours, &c., has for some years occupied the attention of various practitioners, and in this country Dr. Althaus has been forward in his researches and investigations. The adaptation of the same means to the treatment of stricture of the urethra has been a question to which two French surgeons, MM. Mallez and Tripier, have given much study, and their essay on the subject gained the Argenteuil prize in 1869. We had the opportunity of witnessing a demonstration of the method by M. Mallez upon a patient of Sir H. Thompson's in University College Hospital, and we propose to relate briefly what occurred, leaving all comment for a future occasion.

M. Mallez briefly explained his method to the assembled students, and laid great stress upon the fact that he relied upon the chemical effects produced by the contact of the negative pole with the tissue to be resolved, and not upon the caustic effect which would result from the application of the positive pole, or the approximation of the two poles. The battery employed was a very compact one, the elements being chloride of silver and zinc plates, and the agent a solution of chloride of zinc. This was readily controlled by handles, which brought more or less of the battery into action as required.

The patient was a young man, with a stricture about the bulb of the urethra admitting a No. 3 catheter with difficulty, and having also a fistula in perineo. The rheophore connected with the positive pole was strapped on the patient's thigh, and M. Mallez then introduced into the urethra a bougie containing a platinum wire, which was passed into the stricture. To this the negative pole of the battery was attached, and the action of the battery was kept up for some minutes. The patient experienced a slight uneasiness in the urethra at first, and subsequently a burning sensation in the thigh, but by no means severe. M. Mallez explained that ordinarily the application of the galvano-caustic gave rise to no hæmorrhage; but on this occasion some had been produced by the preliminary examinations he had been obliged to make on seeing the patient for the first time. He also said that usually no examination of the urethra was made for some days after the application of the galvanism, the effect of which continued for some time. On this occasion, however, for the sake of the demonstration, he would show the result by passing a bougie. This, it must be confessed, was the least satisfactory part of the performance, for a large bougie could not be introduced; and though subsequently Sir H. Thompson passed two or three instruments of increasing size, it would be difficult to distinguish the proceeding from one of ordinary mechanical dilatation. Still, as Sir H. Thompson very justly observed, an opinion must not be formed on one case, and he promised to give M. Mallez further opportunities of demonstrating his method of treatment.

RARITY OF THE HEALING OF GUNSHOT WOUNDS.

An interesting paper, with this title, appears in a late number of the *Wiener Medizinischer Wochenschrift*, from the pen of Professor Billroth. He refers to various cases in civil practice in which fragments of iron, chipped off by hammers or chisels, penetrated the skin, and caused little irritation of the parts, healing rapidly occurring when they were removed; but his experience of the present war has proved to him that modern bullets, &c., are by no means such unexciting guests. "Sooner or later in almost every instance," he says, "they excite suppuration, and it is rare to meet with a case which heals without pain and the discharge of pus." And he proceeds to explain the reason of this. Most of the projectiles he has extracted have their form changed, so that they appear as amorphous and often sharp-angled masses, and these sharp angles undoubtedly cause great irritation. When such a body is present, and yet cannot be found, repeated incisions with the object of letting out pus are insufficient to arrest the progress of the inflammation, though this is immediately produced by the removal of the foreign body. Fragments of granite act exactly in a similar manner to these irregular pieces of metal. Elongated bullets in particular become multangular when they strike against a bone, either simply breaking or comminuting it. The coincident injury of the periosteum with that of the bone is of the greatest importance in the production of the inflammatory process. Acute osteo-myelitis and periostitis have cell-proliferation so constantly as their result that to these, as much as to the angular missile, the suppuration must be attributed. Even quite unaltered projectiles have usually a pyogenic action, pus appearing two, four, or even six weeks after the receipt of the injury, especially when they lodge in the head of the humerus, tibia, or femur; healing is here very rare, the bony tissue being more or less broken down, and suppuration, osteitis, periostitis, and inflammation of the joint occurring sometimes at a very late period, and quite unexpectedly. If, however, the ball can be extracted without damaging or opening the joint, the result is often very speedy and successful. He records two cases in which perfectly smooth and unaltered projectiles occasioned violent suppuration. In all cases, then, he recommends that bullets and other projectiles should be removed as soon as practicable with long clawed forceps. In the several cavities, however, and in the region of the neck, groping after a ball should be carefully avoided. Nélaton's sound appears to be useful, but the bulb should not be larger than a good-sized pea.

THE SPECULUM.

We have received a pamphlet purporting to be written by a "Fellow of the Royal College of Surgeons," and bearing the odd title of "The Speculum, its Moral Tendencies," which seeks to revive an almost forgotten controversy. As a matter of course, the author does not refer to the moral tendencies of the instrument itself, but to those of its employment; and he maintains that the speculum is improperly and indiscriminatingly used by many men highly placed in the profession, and that the practices of these men leave their results in the lowered and loosened state to which they are rapidly bringing the morality of the country.

It is manifest, we apprehend, that such a pamphlet as this cannot fulfil any good or useful purpose. Its only possible effect would be to distress some modest and virtuous woman for whom the speculum has been employed or suggested; and to render her unwilling to submit to treatment by its aid. No one can possibly give heed to vague anonymous accusations against an entire profession; and the author, if he intended his protest to have any weight, should have published his name, and an outline of some of the circumstances on which his opinion has been founded.

Even if it be true, as stated by the writer, that there are women who force their doctors to use the speculum, we should still demur from his conclusion that they are thereby demoralised. The demoralisation would, we think, be an antecedent rather than a consequent—a cause rather than an effect. And the fact is, that medical and surgical examinations of the sexual organs are, as a rule, too much affairs of business to be attended with any moral consequences whatever. Most practitioners require the presence of another woman when such examinations are made, and both patient and doctor usually take the whole proceeding as a matter of course—as much so as the examination of the tongue or of the chest. It is of course possible that a few morbid-minded women may derive some undesirable form of satisfaction from going to a doctor; but we suspect they would go to talk about their complaints if the speculum had never been discovered; and we wholly disbelieve the very unpleasant suggestions of the singularly nasty pamphlet to which our duty has compelled us to refer.

RECENT INVESTIGATIONS ON DEGLUTITION.

MM. Auguste Waller and Prevost state that in repeating the principal experiments of the late Prof. Rosenthal, on the effects produced on respiration by electrifying the superior laryngeal and pneumogastric nerves, they were struck by the occurrence of certain movements of ascent of the larynx in mass exhibited when the superior laryngeal nerve was stimulated. They soon ascertained that these were really movements of deglutition of a reflex nature, and they were induced to study the subject more carefully. The conclusions at which they have arrived are summed up in the following propositions:—

First, movements of deglutition can be obtained by the excitation of the central extremity of the recurrent nerves; of the vagi, providing the excitation is made above the origin of the superior laryngeal nerves; and, lastly, of the glosso-pharyngeal nerves in the dog and cat, though not in the rabbit. Secondly, a series of experiments made upon the rabbit with the special object in view of ascertaining, after the opening of the laryngeal, pharyngeal, and buccal cavities, what parts on being excited occasioned deglutition, and to eliminate gradually the excitor nervous agents by the section of the several nerves, showed (*a*) that in the rabbit the glosso-pharyngeal nerve takes no part in the reflex phenomena of deglutition; (*b*) the fifth nerve, supplying the velum palati, is the chief sensory nerve presiding over deglutition, for, after section of the fifth nerve on one side of the head, the act of deglutition can no longer be induced by excitation of the corresponding side of the velum palati; (*c*) the superior laryngeal nerve contributes to the reflex actions of deglutition by supplying the mucous membrane covering the epiglottis, the aryteno-epiglottidean folds, the superior borders of the laryngeal orifice, and chiefly that which covers the cartilages of Santorini; (*d*) the recurrent nerve contributes also by its sensory branches to the reflex phenomena of deglutition. The authors state that they have frequently noticed the occurrence of cough in electrifying the trunk of the superior larygeal, recurrent, and glossó-pharyngeal nerves in the cat and dog. In the rabbit they occasionally observed coughing on excitation of this last nerve.

SANITARY STREET-WATERING.

In the course of last autumn, when noticing Mr. Cooper's ingenious proposal to water the streets of London with a solution of deliquescent chlorides, so that rapid drying might be prevented, and ammoniacal decomposition checked, we expressed curiosity with regard to the quantity of chloride of aluminium or other salt that would be needed in order to arrest the putrefaction of the average amount of horse-droppings left in our thoroughfares. We have now been informed, on the joint authority of Mr. Cooper and Professor Wanklyn, that, in a street of great traffic, such as Parliament-street, where it is calculated that 9276 vehicles pass every day, the average daily deposit of horse-dung amounts to 400 lb. over an area of one thousand square yards. To deodorise this quantity, 40 lb. of mixed chloride of sodium and calcium would be required; but the addition of 5 per cent. of chloride of aluminium to this mixture increases its activity by 20 per cent., and renders 32 lb. of the triple compound sufficient. It is manifest that this small quantity can be used without the least difficulty; and hence that the problem how to deodorise the streets, and to get rid of ammoniacal dust, may be said to be practically solved. In Westminster the experiments with Mr. Cooper's solution have been so successful that the Board of Works awarded to him an additional payment of £100 as an evidence of their complete satisfaction; and we are glad to learn that the authorities of other parishes also are adopting the plan, or are making preliminary inquiries with regard to it. It can hardly be doubted that the general use of the solution would tend to destroy a considerable proportion of the germs or carriers of infectious diseases. These carriers, whatever their nature, must often rest for a time on the surface of London streets; and there can be little question that the mixed chlorides would destroy their activity. It is an important matter that Mr. Cooper's solution is in itself quite harmless to animal life, and hence that no accident can result from its employment.

POST-MORTEM ELEVATION OF TEMPERATURE.

Few physicians are aware that so far back as the year 1770 the celebrated physician, De Haën, of Vienna, observed that an elevation in the temperature of the body occurred in the death-agony, and persisted for some time after death had actually taken place. The observation, however, was soon forgotten, and it is only recently, since attention has been especially directed to the changes occurring in the temperature of the body in disease, that the fact has been re-established. The point has been made the subject of a prize by the University of Berne, and the prize has been carried off by M. Valentin, a relative, we believe, of the well-known physiologist. The following are the principal results at which he has arrived. The development of heat after death is common to all bodies, though varying in degree in different instances. As soon as the development of heat in the body after death is greater than the coetaneous loss of heat by physical causes, an increase in the temperature occurs. This occurs, consequently, either from an increase in the development of heat, or from the concurrence of circumstances diminishing the loss of heat. The post-mortem elevation of temperature primarily results from the persistence of the vital processes which ordinarily lead to the development of animal heat, even after the heart has ceased to beat. Augmentation of these processes, which especially result from certain nervous influences, may cause great post-mortem elevation. The occurrence of rigor mortis, although causing the elimination of some heat, is yet only of subordinate influence on the general elevation of temperature that occurs after death. It is not improbable that post-mortem disintegration and decomposition may to some extent aid in the post-mortem elevation of temperature. The loss of heat after death is, *cæteris paribus*, much smaller than during life, owing to the cessation of respiration, and the diminished evaporation from the skin, and this may also be accessory to an elevation of temperature without the actual generation of heat. The experiments which enabled M. Valentin to draw the foregoing conclusions were made on the dog, rabbit, pig, guinea-pig, marmot, pigeon, and frog.

LYMPHATICS OF THE LUNGS.

An investigation upon the lymphatics of the lungs has been recently undertaken by Herr Iwan Sikorsky, in Chrzonszczewsky's laboratory in Kiew, and is published in the *Centralblatt* of December 3rd. The method adopted consisted in the injection of a watery solution of ammonia into the lungs of living cats and dogs, and the subsequent examination of the paths pursued by the tinted fluid, the lungs being at once removed from the body and frozen, and the bloodvessels being in most cases injected with a solution of gelatine tinted blue. In such experiments it was found that, in opposition to the effect produced in dead animals, neither the intercellular substance nor the cell formations, not even the columnar epithelium of the bronchia, with which the carmine solution must have been in direct contact, became tainted. The commencement of the lymphatic system was not exactly the same in the bronchia and in the alveoli of the lungs. In the bronchia the epithelium generally remained uncolored; but between the columnar cells were special structures, very similar in form to these cells, and staining strongly with carmine. From these structures minute canals penetrated perpendicularly to the surface of the mucous membrane, and formed a close plexus in the submucosa, and partly also in the mucosa, from which larger trunks originate, which accompany the bronchia to the roots of the lungs. In the alveoli of the lungs, on the other hand, a peculiar plexus, composed of tubes and nodal dilatations, is found; the latter are triangular, stellate, or irregular cavities, which are again connected with the lumen of the alveoli by means of very fine tubules. The lymphatic plexus of the alveoli gives origin to larger vessels, which accompany the veins to the roots of the lungs. This system constitutes the so-called deep plexus of lymphatics of the lungs. The superficial plexus arises from the subpleural alveoli. The trunks pass into the pleura, and then into the pulmonary ligaments.

THE METHODS OF DISINFECTION USED IN THE ARMY.

We perceive that a circular has just been issued by the War Office as to the method of procedure in the case of infected bedding, clothing, &c. As we are frequently applied to, and have more than once ourselves furnished information on this subject, our readies may be interested in learning what are to be the processes adopted by army medical officers. Whenever hospital bedding or clothing has been used by patients affected with specific fevers of infectious character, the hair of the mattress, &c., is to be opened out, exposed to the air, and beaten, and, when practicable, submitted to a dry heat of 250° Fahr.; the remainder of the bedding as well as all the clothing, if not liable to be injured by the process, is to be boiled, or where this cannot be done, steeped in boiling water, and, in the latter case, the materials are to be chemically disinfected, in addition to being exposed to the air and washed, before being used. We may remark, *en passant*, that an ordinary oven can be used for procuring the dry heat, except that the association suggested is not altogether a pleasant one perhaps. The articles of a soldier's kit that cannot be treated in the manner above are to be taken to hospital, fumigated, and exposed to the air and sun for a week. The straw of the barrack bedding is directed to be burnt, and the remainder, with the clothing belonging to the patients, but not actually in use by them, is, if not liable to injury, to be steeped in boiling water, exposed to the air, and washed without removal to hospital.

The barrack-room in which the disease occurred is, whenever considered advisable, to be vacated, thoroughly cleansed, and left unoccupied, with the windows open, as long as possible. Whenever it is thought necessary to fumigate the room in addition to these measures, it is to be done with the aid of chlorine gas, or nitrous acid or sulphurous acid gas.

A SANITARY DETACHMENT ON THE BATTLE-FIELD.

A medical officer doing duty with a Prussian ambulance forwards us a sketch of what occurred during one of the recent battles:—"The sound of cannon suddenly aroused us to the knowlege that our army had met with the enemy, and that a battle had begun. We lost no time, but galloped our ambulance-waggons across the fields, and in about half an hour reached the battle-line. On the right was situated a great farm, somewhat isolated in position, and defended by some contiguous hills from fire. This we fixed upon. The buildings formed a square, one side of which was open and accessible to our waggons. In a brief time some rooms were set apart for operations. Our cases of instruments were opened, bandages and other appliances at hand, and our detachment was ready. The work of the sick-bearers now began. They were sent to pick up the wounded, accompanied by one surgeon, another being ordered to attend with us. After a few minutes the first patient was brought in with a bad comminuted fracture of the left thigh, rendering it necessary to perform amputation; this effected, the part was bandaged with lint, and carbolic acid applied to the stump. It ought to be remarked that in the Prussian ambulances and hospitals an oily solution of this acid (1 in 40) is used. The first case was speedily succeeded by others. We worked hard all day until the evening, five surgeons attending on 531 men, of whom 150 were badly wounded. We were told that during the first few hours the fire was particularly heavy, and our artillery suffered a great deal from that of the French, and the same was the case with the infantry. The projectiles of the chassepôt and the mitrailleuse reached an enormous distance. Among the 150 badly wounded, there were 8 fractures of the skull, 23 wounds of the chest, 56 fractures of the humerus, elbow, and forearm, and 43 fractures of the thighs and legs. The remaining 381 were chiefly flesh wounds in various parts, many of whom were able, of course, to walk to the next ambulance. The first cases received the most care, but when the wounded began to arrive in heaps we could only content ourselves with examining the wounds, extracting the balls, and by the adjustment of a bandage and dressing preparing the soldier for transport, to which end our well-fitted ambulance waggons were continually driving about; but they proved quite insufficient, and we were compelled to make use of the ordinary carriages filled with straw."

TOOTH-PAIN WITHOUT CARIES.

We all have met with cases of great pain in apparently sound teeth. Mr. White, at the recent annual meeting of the Odontological Society, made an important contribution to an understanding of such cases. A boy eight years old was brought to him on account of continued pain in a lower temporary canine tooth. The tooth being quite sound and firm, he advised that the gum be well rubbed with spirits of camphor as a counter-irritant, and that the boy be brought back in a week. But before this time had elapsed the boy was brought back with a request that the tooth might be at once extracted, with a view to the relief of the incessant pain. This was done, and the cause of the pain was looked for in the pulp cavity of the tooth by Mr. White, who at a former time had found intolerable pain caused in a young lady of seventeen, in whom all the teeth on the affected side were apparently sound. She referred the pain to an inferior front bicuspid. This was eventually extracted, at the earnest solicitation of the patient, and on being opened the cause of pain was manifested in a globular mass of osseous deposit in the upper part of the pulp. It consisted of nodular dentine pressing the sensitive pulp against the walls of the cavity. In the case of the little boy, Mr. White's scientific curiosity was rewarded by finding in the pulp an osseous deposit unlike either secondary or nodular dentine. It was more like very coarse cementum; but on closer examination it was found more nearly allied to osseous tissue existing in the cancelli of bone. It filled very nearly the whole of the pulp cavity at the junction of its middle and lower thirds, and was pressing the fasciculi of nerve-fibres out of their course. There can be no doubt that this was the cause of the pain. Two months had elapsed, and Mr. White had heard nothing more of his little patient.

CONCURRENCE OF ACUTE SPECIFIC DISEASES.

An interesting discussion of a very practical nature took place at a recent meeting of the Medical Society of London, upon the question of the concurrence, at or about the same time, and in the same patient, of two acute specific diseases. Dr. Brunton narrated the particulars of two cases in which, in the one instance measles (as indicated not only by the features of the eruption itself, but by the time of its incidence, subsequent to the occurrence of constitutional symptoms of the usual kind), and in the other scarlatina, running its ordinary course of development, was noticed to be coincident with the manifestation of variola, the eruptions of the latter being however somewhat delayed by the measles and the scarlatina. Three points were elicited by the discussion,—the first, that undoubtedly two acute specific diseases might occur together; the second, that more facts were needed to enable us to state with precision the frequency of such occurrence, and the relative influence exerted the one upon the other by the concurring diseases; and, lastly, that in making a diagnosis great care ought to be taken to ascertain whether the course run by the supposed scarlatina and measles was, as regards not only the eruptive phenomena but the general symptoms, quite typical and characteristic, otherwise it could not confidently be averred that the disease was measles or scarlatina. But it was abundantly proved, and this fact was stated prominently by several speakers as having occurred in their own experience, that the mere fact of a rash preceding the development of variola, having the character of measles on the one hand, or of scarlatina on the other, was no proof that these two diseases were present in addition to the variola; for the antecedent roseola variolosa often presented deceptive characters of the kind; but then the related general phenomena, and the sequence of concomitant events characteristic of the two diseases named, were absent.

ELECTROLYSIS IN SURGERY.

M. Groh (*Centralblatt*, No. 2) has made a series of experiments with differently constructed batteries. He finds that strong currents are best adapted for those cases in which it is desirable that rapid destruction should be effected, as in carcinoma; but for the treatment of small tumours, and where the object is to produce coagulation, those batteries should be used which consist of a small number of small plates. The pain accompanying the operation increases with the number of the elements. He is of opinion that in those cases in which it is desired to avoid pain as far as possible, the batteries that are used for galvano-caustic purposes are most appropriate. He believes that electrolysis is only a corrosion of the tissue; nevertheless, in a great number of cases, it acts better than any other caustic. In the first series of cases he reports that he treated six patients in twelve sittings with the catalytic current. None of these patients were narcotised, and the pain was found to be supportable up to twenty elements. One of them was a man, aged thirty-nine, with hydro-sarcocele. Immediately after the application considerable diminution of the consistence of the tumour was observed; and after four days it had diminished one-half. In a number of other cases of strumous enlargements, melano-sarcoma, &c., success attended the treatment in some, failure in others. In a second series of experiments M. Groh endeavored to introduce arsenic and sodium into the body by means of the current, but obtained only negative results. He has used electrolysis in various modes: with strong currents applied for a short time, and with weak currents for a longer period; the former in cases of angioma, hæmorrhoids or swellings, scrofulous lupus, condylomata, and sarcoma, and in all instances with good results. The application of weak currents he thinks deserving of much more extended trial, as it has answered capitally in his hands.

YELLOW FEVER IN BUENOS AYRES.

At the beginning of this year Buenos Ayres had a population of more than 180,000. Towards the close of January (which is a summer month in that part of the world) yellow fever began to show itself in that city, and by the end of the first week in February the deaths due to it numbered 50. The fever increased in severity, and 1757 persons died of it during the last week of March. The latest official returns show the deaths during the week ending April 12th to have reached 2926. The total mortality due to yellow fever in Buenos Ayres during the period from the 1st of February to the 12th of April is given officially as 9758, and probably exceeds that number.

These statistics, however, do not give an adequate idea of the extent of the calamity. As the fever increased in severity the inhabitants began to fly from the city into the country, and from 180,000 the population of Buenos Ayres had sunk to 30,000 by the beginning of April. There was, therefore, a mortality of about 3000 in one week among a population of 30,000—decimation in one week.

Buenos Ayres lies very low, part of it being only a few feet above the level of the sea. Cesspools abound in it. There are more than 60,000 cesspools, many of which have been in use for more than a century; some, it is said, for two centuries. Since the outbreak of the plague attempts have been made to clear out some of these cesspools—a proceeding which we cannot help regarding as very hazardous. The streets have been covered with gas-tar; carbolic acid has been thrown about in all directions; and turpentine allowed to diffuse into the air, in the hope that the ozone generated by the slow oxidation of the turpentine might aid in arresting the contagion.

CONTRACTILITY OF THE CORPUSCLES OF THE CORNEA.

Alex. Rollett communicates to the *Centralblatt* the results of his observations on the cornea of the frog, freshly removed from the animal, placed in the aqueous humour, and submitted to the action of electrical shocks. Before the passage of the current, the corneal tissue appears to be homogeneous, or with only a few radiated corneal corpuscles scattered through it; but, immediately after excitation, elongated and sinuous, fusiform, elliptical, and round, clear figures make their appearance. These are nothing but the optical expression of longitudinal, oblique, or transverse sections of the communicating system of lacunæ traversing the cornea, the dilated nodal points of which are occupied by the nucleated central portion of the radiating and contractile corneal corpuscles. The contours of this canalicular system are rendered visible by the electrical current, because it occasions the retraction of the corneal corpuscles from the walls of the cavities in which they are contained. In all such cases the nucleated masses of protoplasm may be seen surrounded by a transparent area, and with small spikes projecting from its surface, which are the retracted arms. The appearances described vanish if the shock is not repeated; but can be made to reappear if the current is again transmitted. Thus Rollett maintains that the corneal protoplasm is contractile. He is therefore essentially in accord with Kühne, and opposes Engelmann. He differs, however, from Kühne in considering the contractile protoplasm is contained in a cavity with proper walls.

PURGATIVES IN PERITYPHLITIS.

Dr. Andrew Clark recently made some excellent remarks, at one of the meetings of the Medical Society of London, on one or two points, specially the use of purgatives in, and the removal of convalescents from, perityphlitis. He related the particulars of several cases in illustration of his observations, which were intended to show that in the early stages of the disease, where there was much general disturbance, with a rise of temperature, quick pulse, hot skin, vomiting and local tenderness, purgatives were almost sure to do harm; that later on, when such symptoms as these had subsided, it was advisable to unlock the bowels with copious enemata, placing the patient in bed with the hips raised, a dose of castor oil being given by the mouth. He remarked that in perityphlitis there was a tendency during convalescence to the reaccumulation of fæcal matter in the bowels, giving rise to a doughy swelling, demanding for its dispersion the use of purgatives; and if these were withheld, then harm might readily result. Another point specially noticed was the inadvisability of moving patients until some time after the disappearance of the actual symptoms of the disease. Dr. Clark averred that a patient ought not to be moved about, and certainly not to take a journey, until at least a week had elapsed after the pulse had fallen to its proper standard, all pain and fever had gone, and the temperature had become quite normal. Dr. Habershon and others who took part in the discussion, agreed generally with the President in the opinion he expressed, and based their remarks upon their personal experience, which they gave at length.

DECAPITATION BY HANGING.

At a meeting of the Surgical Society of Ireland held on the 20th January, Mr. Humphry Minchin, surgeon to the Dublin city prisons, exhibited several cervical vertebræ belonging to a man executed for murder some months since in Dublin, and whose head during the execution was wrenched off. On examination there was not found any dislocation, the atlas was intact, but the axis was fractured. A peculiar point in this remarkable case was that the neck was severed below where the injury to the axis had occurred. The quantity of blood which flowed from the head after the execution was twice as much as that obtained from the trunk, which may be explained by the unskilful manner in which the executioner performed his duty—tying the noose round the unfortunate man's neck so tightly as to cause great congestion in the cerebral vessels. The carotid arteries, it may be mentioned, beat for fully five minutes after death, ejecting at stated intervals a jet of blood. This peculiar termination of the case caused such excitement in Dublin that it was investigated, by order of the Lord Lieutenant, by Drs. Lentaigne and Hatchell, who attributed it, not to the fall of fourteen feet, but to the badness of the rope, which was incapable of resiliency.

KALI-KUTKI: A NEW TONIC.

Mr. M. C. Cooke, in a late number of the *Pharmaceutical Journal*, gives a description and an account of the properties of this plant, which has long been considered to be the black hellebore, but which really belongs, not to the Ranunculaceæ, but to the Scrophulariaceæ. Though unknown in the English market, it is well known throughout India. The drug consists partly of the root and partly of the stem of the plant. The root part is very light and brittle, about the size of a goosequill, brownish-white in color externally, and deep black internally, with short waxy fracture. It is stated to be a very valuable tonic, Assistant-surgeon Moordeen Sheriff considering it equal to gentian and calumba, and superior to chirayta. As a dose, ten or twenty grains as a tonic, and from twenty to forty as an antiperiodic, are recommended.

A NEW FOOD FOR THE POOR.

At a meeting of gentlemen at the Whittington Club, Mr. Low submitted specimens of a patented combination of extractum carnis and granulated Brazil tapioca. Each packet is said to contain the essence of half a pound of beef, with 60 per cent. of the finest Brazil tapioca. He proposed to introduce the food in penny packets as a benevolent action, and stated that it had been already used in the German ambulances. The proposal seems to us to be too good to be true, but we should be glad to hear of the poor being able to buy such useful food at so reasonable a rate.

Correspondence.

"Audi alteram partem."

ON DR. SAYRE'S "SUBPERIOSTEAL EXSECTION" OF THE HIP-JOINT.

To the Editor of The Lancet.

Sir,—Recently my friend, Dr. Lewis Sayre, did me the honor to visit the Charing-cross Hospital, as I had informed him that a case for excision of the hip had been placed under my charge. The distinguished surgeon of New York has performed that operation a great many times, and has described his method as "subperiosteal," using for peeling away that membrane a blunt or semi-blunt instrument which he calls his "oyster-knife." This instrument has in the middle a roughened handle, at one end of which projects a straight thick blade, and the other a thick curved blade, both with blunt edges. I also have often performed this operation, and likewise have my own method, in which the periosteum is preserved; but I use the same sharp blade throughout.

In the operation I commenced my semilunar incision with forward concavity, one inch above the trochanter, and terminated it on the outer aspect of the thigh three inches below that point. This was deepened so as to divide the external obturator muscle and the capsular ligament on the back and upper part, also for some distance on the lower aspect of the joint. My left forefinger then lay on the carious head of the bone, still in the acetabulum, and when passed above the neck it lay beneath the two lesser glutei and the external rotator muscles. My next step in the procedure is to pass my knife flatwise on my finger beneath those parts, then, lifting the blade over the top of the bone, to pass it along the outer surface of the trochanter, peeling away the gluteus medius and periosteum from the oblique line and the surface in front; next, bringing the handle forward so as to place the blade, still under the periosteum, on the front margin of the trochanter, to separate in the same way the smallest gluteus and pyriformis. There now only remains of periosteum that part which lies behind the oblique line. A cut across the bone in the place where the saw is to come separates this triangular piece from its continuation below, and by seizing the front and lower angle with forceps or fingers, this piece, with very little or no assistance from the knife, can be stripped from the bone as far as the posterior intra-trochanteric line. The rest of the operation is merely throwing the bone out of the socket, and sawing off its end.

When, however, I had bared the head and trochanter, and before I separated these muscles and the periosteum (down to which points Dr. Sayre's method and mine are, I believe, the same or nearly so), I wished to see, and to give Dr. Sayre an opportunity of showing in England, the use of the instrument termed "oyster knife," and his method of employing it, which is as follows:—He makes a crucial cut through the periosteum on the outer face of the trochanter, and then uses his blunt tool with considerable force to peel away the periosteum, with a good deal of bone detritus attached;

as far as the inter-trochanteric line in front and behind; he then throws the head out of the cavity, and applies the saw as usual. I am bound, however, to say that his use of the "oyster knife" impresses me with a profound conviction that it is not a desirable weapon; it does not separate the membrane cleanly, but ploughs through the outer casing of the bone. It therefore prolongs the operation, renders a considerable amount of force necessary, thus bruising the periosteum and brutalising the bone-surface. Moreover, the crucial incision in the periosteum renders it almost indispensable to dislocate the bone by throwing it straight upwards, a less easy direction than that to be described, and rendering a higher place of incision necessary.

Recurring to what I consider those original points of my own proceeding which contrast with Dr. Sayre's, I would point out that the upper horn of my first incision, about three-quarters of an inch above the trochanter, falls a little higher than the spot where the smaller glutei begin to form their tendons, and leaves just room enough for lifting the blade over the top of the bone so as to make these muscles directors for separating the periosteum. By using nature as my guide, I take advantage of the oblique line, along the edges of which, as on a hem, we can get the firmist grip of the membrane. Moreover, in throwing the bone out of its fibrous bag we give it the backward and upward inclination of this line—the easiest direction in which to dislocate the femur. The proof that my operations are quite "subperiosteal" lies in the fact that the portions sawn off are clear of that membrane, but are smoother and less marred than they appear after application of the "oyster knife."

I shall of course watch this case closely, and duly report if any subsequent events warrant a change in these views; but at present I must continue to prefer using, for all work not absolutely bony, the knife, and avoiding any forcible dealing with a blunt instrument where a sharp one may be more gently and as safely used. I have known Dr. Sayre so long by interchange of letters and other courtersies that I am sure he will receive my criticism in the spirit which prompts it.

I am, Sir, your obedient servant,

RICHARD BARWELL.

George-street, Hanover-square, July 11th, 1871.

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ON DIGITAL EXAMINATION OF THE UTERUS AND OF THE PELVIC CAVITY.

To the Editor of THE LANCET.

SIR,—In the previous number of THE LANCET you have published a lecture on Digital Examination of the Uterus, by Dr. Graily Hewitt, in every respect worthy of the reputation of the author. It contains, however, statements, no doubt unwittingly made, which are calculated to mislead the junior members of the profession with regard to the history of this department of medicine, and this must be my excuse for addressing you.

Dr. Graily Hewitt says: "Within the past thirty years much attention has been given to this subject. For some time the speculum was the instrument almost exclusively used in obtaining information as to the physical condition of the uterus. This method of investigation has been followed, in too many cases, to the exclusion of all other methods of examination," &c.

I have no hesitation in stating that Dr. Graily Hewitt is totally and entirely wrong on this point. I have been so thoroughly mixed up with the history of uterine pathology during the last thirty-five years that my testimony must carry weight with it. In 1836 I was in Paris attending the practice of the eminent surgeon Lisfranc, at La Pitié. Lisfranc was the first after Recamier to take up the then all but unknown subject of uterine pathology. He had a ward always full of uterine cases, the celebrated Salle St. Augustine, which I paced for years, and he constantly lectured and wrote on uterine subjects. One of his favorite subjects was "digital examination," which French pathologists call "*le toucher*," and I have repeatedly heard him devote an entire lecture to its elucidation. I may say the same of Velpeau, of Gendrin, of Emery, of Jobert de Lamballe, whose pupil, dresser, and house-surgeon I successively became, and who, one and all, paid special and exceptional attention to uterine pathology. In all the pamphlets and works that were then published, "*le toucher*" occupied a prominent part. In my own clinical lectures, given for years in the Paris hospitals, on uterine cases, I devoted the same attention to this mode of investigation. The specular examination was always by everyone considered secondary and supplementary. I can appeal to Dr. Barnes and Dr. Tilt, my then companions in Paris. Once settled in London, I continued to practise and teach the same doctrine—the primary importance of digital examination. In the first edition of my work on Uterine Inflammation, published in 1845, twenty-six years ago, I adopted the French term *toucher*, and well remember the friendly smiles with which it was received. In the second edition, in 1848, I used the term "digital examination." I became personally acquainted with Sir James Simpson in 1845, and was constantly in communication with him afterwards, and can testify to his having throughout his career given due importance, both in theory and in practice, to the digital investigation of the organs contained in the pelvic cavity. Indeed, I do not think a single author whose works I have read has omitted to do so.

There are two points alluded to by Dr. Hewitt that require a few words of notice. He thinks the usual British obstetric position the best and sufficient. For my own part, I think the patient should first be examined on her side, and then on her back, and that without this latter examination the information obtained is incomplete. The side position is perfect as far as the sacral portion of the pelvic cavity and the iliac region opposed to the one on which the patient lies are concerned. But the pelvic contents necessarily fall on the opposite pelvic and iliac regions, on those on which the patient lies, and prevent accurate investigation. Moreover, it is not so easy to depress the abdominal walls when a woman lies on her side as when she lies on her back in the lithotomy position.

Dr. Graily Hewitt, speaking of the os uteri in women who have borne children, says "the aperture may be so large as to admit one or two fingers." Now I believe this to be an error, if it is meant that such a condition is compatible with a thoroughly healthy cervix and uterus. I do not deny that such may very exceptionally be the case; but I assert without hesitation that nineteen times out of twenty such a state of the os uteri means disease, and ought to lead us to make a careful examination with a large bivalve speculum. Such an examination will usually reveal a very diseased state of the mucous membrane lining the cervical canal of the open os. An open os is one of my most trusted guides and sanctions when I wish to decide whether more than a digital examination is justified and required.

I am, Sir, your obedient servant,
J. Henry Bennet, M.D.

Grosvenor-street, May 18th, 1871.

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DISSECTION POISONS.

To the Editor of The Lancet.

Sir,—On reading the lecture on "Dissection Poisons" by Mr. Paget, I sent to the author a few details of my own case, which seemed to confirm and illustrate some of his conclusions. These details Mr. Paget urged me to publish, "for the sake of the study of immunities, which are as necessary to be considered in pathology as are the liabilities to disease." I venture therefore, in accordance with this suggestion, to send you the following notes.

Fourteen years ago, when residing in King's College Hospital, and performing the duties of Pathological Registrar, I was constantly exposed to infection of all kinds, and made all the post-mortem examinations, often with cut fingers; but neither fever poisons nor the fluids of the dead body had any effect upon me.

After a holiday spent in the pure air of the coast I returned to my post in perfect health, and immediately, on the very day of my return, I got a dissection wound and caught scarlet fever. The right forefinger, which had been scratched festered slightly, but the affection seemed purely local. On the sixth day after return to hospital and exposure to infection, scarlatina symptoms appeared; next day there was much membranous exudation about the fauces, and great prostration of strength. The pustule on the finger, which had almost died away, now re-appeared, rapidly inflamed, the axillary glands became involved, and the whole arm erysipelatous. The exhaustion was so great that it was impossible to turn in bed without assistance, and I lost 21 lb. in weight in ten days.

Nitrate of silver was repeatedly applied to the fauces, the inflamed arm was kept in a warm bath, and, under good nursing and feeding, strength was soon regained, and in two or three weeks I returned to work, having no longer any seeming susceptibility to post-mortem or fever poisons.

My own personal experience seems therefore strikingly to illustrate Mr. Paget's statements. 1. That continued exposure to infection lessens liability to attack, but that on withdrawal from such exposure the liability returns. 2. That it is not always the most healthy who have the greatest immunity, but rather those who (although possibly in feeble health) are inured by previous exposure. 3. That dissection poisons produce their severe effects when the power of resistance is lowered, or when the organs are charged with some morbid product on which the poisons flourish and multiply.

I am, Sir, your obedient servant,
E. Symes Thompson.

June 14th, 1871.

VACCINATION FROM THE HEIFER.

To the Editor of The Lancet.

Sir,—In the present discussion on vaccination, the following cases of revaccination, *direct from the calf*, performed on a family of twelve persons, appear to me to bear a certain amount of interest as regards complications that may arise even under such circumstances.

In six the ages varied from nine to twenty years; of these, three had enlargement of the glands in the axilla; five healed in three, and one in four weeks. In the remaining six, the age was from twenty upwards; of these three suffered considerably from tenderness in the axilla, with an inflammatory condition of the entire arm on its outer surface, down to and slightly below the elbow, the ulcers having healed respectively in fourteen, seventeen, and thirty-three days. In the last a papular eruption appeared on the arm before, and did not disappear until a short time subsequent to, its healing. In the remaining three there was enlargement of the glands in the axilla; the ulcers healing, two in seven, and one in eight weeks. In two the ulcer was elevated, with a thickened base; the third somewhat excavated, with an irregular bleeding surface, sharp, well-defined edges and thickened base, followed by a small abscess below the clavicle.

The only treatment employed was bread-and-milk poultice for a couple of nights, and subsequently water dressing.

The vaccination was performed in each case at three points on the outside of the left arm over the deltoid, all of which were successful, except in three of the youngest, in which one point failed in each. All the above have continued in good health since their local troubles terminated.

I remain, Sir, your obedient servant,
John W. Trotter,
May 27th, 1871. Coldstream Guards.

◆

IRON-ALUM AS A HÆMOSTATIC.

To the Editor of The Lancet.

Sir,—I beg to bring under the notice of the profession a most powerful hæmostatic in the form of the chemical preparation known as iron-alum. A strong solution of this salt in glycerine is admirably adapted for the arrest of continued profuse bleeding, where there is no large vessel to be seen and secured by means of the ligature or by torsion. For hæmorrhage from the gums, it may be applied in powder upon a piece of surgeon's lint; while epistaxis may be checked by stuffing the nostrils with lint soaked in a saturated solution of this preparation. Of course it is not suitable for arresting hæmorrhage from vessels much above the size of capillaries; but by this capillary hæmorrhage a patient may lose a large quantity of blood, which in a person below the standard of health is deleterious, if not dangerous. When incisions are made into congested parts, we have often a great deal of capillary bleeding, which the preparation in question is eminently fitted to control. Internal hæmorrhages may be treated with iron-alum with advantage, particularly gastrorrhagia and enterorrhagia, as well as bleeding from the rectum, where it is to be used as an injection. In these last cases it is advantageously combined with some of the preparations of opium.

It may be that iron-alum will be another antiseptic. For this purpose I have not had sufficient experience of it to speak.

I am, Sir, sincerely yours,
M.B., & C.M.

June 1st, 1871.

SPECTRUM ANALYSIS OF BLOOD-STAINS.

To the Editor of The Lancet.

Sir,—From time to time I have made a large number of examinations of blood-stains of all kinds and ages, and have been led to regard their detection by the microspectroscope as a method of marvellous delicacy and unquestionable certainty. I cannot therefore but regret, especially at the present time, that any doubt should be expressed respecting this method of research. The bands produced by blood are not "a little dimness," but are as distinct, as certain, and as well marked as the bright lines produced by various burning materials; and, what is more, the definite position of the bands is as certain as the definite position of the bright lines. Mr. Sorby has examined hundreds of substances, and asserts that no substance with which he is acquainted produces bands similar to those produced by blood. I have repeated most of his experiments with the same conclusions. I must say that, in my humble judgment, the detection of blood by the spectroscope is as positively certain as I can conceive any method of analysis to be.

I am, Sir, your obedient servant,
C. Meymott Tidy, M.B.,
Joint Lecturer on Chemistry and Medical Jurisprudence at the London Hospital.

Cambridge-heath, Hackney, May 22nd, 1871.

⁂ The question is purely one of observation and fact. We think that if our readers will first look at the lithium line or the sodium lines, and then at the blood spectrum, they will be amused with our correspondent's statement that the blood-bands are "as distinct, as certain, and as well marked as the bright lines produced by various burning materials."—Ed. L.

CHLORAL IN SUPPOSITORIES IN PUERPERAL CONVULSIONS.

To the Editor of The Lancet.

Sir,—Allow me to record a case of uterine convulsions a quarter of an hour after labour, which lasted four hours, and which I am sorry to say, came to my lot last week, having had three similar cases since Christmas, I report this case to show the good effects of the hydrate of chloral in suppositories when rejected by the mouth in every form.

Mrs. Jane C——, aged forty, soon after the birth of her seventh child, suffered with severe and constant uterine pains, which induced convulsions of a most fearful class. After all the usual remedies were made use of without any permanent effect, I had recourse to the chloral hydrate suppositories:—Chloral hydrate, one drachm; hard soap, two scruples; honey, sufficient quantity. After using two of the suppositories she had no more convulsions. She had four hours' good sleep, from which she awoke convalescent.

I have thought this case worth recording, as I have now tried it in several cases of uterine pains, with constant sickness, with great success.

Yours truly,
G. F. Whidborme, L.R.C.P.

Gorway, Devon, May 15th, 1871.

A RECENT CONTRIBUTION TO MILITARY SURGERY.

An important contribution to our knowledge of the results of amputation has been supplied by Dr. Stephen Smith, in the shape of an analysis of four hundred and thirty-nine cases of recovered amputation in the continuity of the lower extremity.

The paper is based upon the careful study of the stumps of patients when prepared for the application of artificial limbs. Many of them came under observation at the General Hospital at Central Park, New York. This hospital was for upwards of two years the rendezvous of soldiers who had lost their limbs by amputation, and while inmates large numbers were supplied with artificial limbs by Dr. E. D. Hudson, of New York, who held a Government commission for the manufacture and adjustment of appliances to compensate for losses, deformities, &c., resulting from service.

The records include a table of 158 cases of recovered amputation of the thigh, and 287 cases of recovered amputation of the leg. Great pains seem to have been taken to secure accurate information, and the subject involves points that are at once novel and important. The opportunity for studying the final results of amputation on so large a scale has never occurred before.

Of the two principal methods of amputation, the circular and antero-posterior flap, it is noticed that the antero-posterior flap was preferred more frequently in the thigh, and the circular in the leg. Among other methods, that by flaps of skin and circular incision of muscles was performed in ten cases. This method was, it appears, very popular with many military surgeons, especially with those who were compelled to transport their patients long distances. The surgeons in General Sherman's army came to prefer this operation to all others. The flaps of skin being lateral, the cicatrix runs vertically over the face of the stump, allowing the ligatures to be brought out of the lower angle of the wound, and securing good drainage of it.

Regarding the success of amputations at different periods after receipt of injury, we find that —(1) Immediate amputations, or those performed *before the shock*, give good results in military surgery. (2) Amputations performed between the first and sixth hours after the injury, or *during the shock*, are more successful than when performed at a later period, but are not probably more successful than when performed immediately. (3) Amputations performed between the sixth and forty-eighth hours, or in the period of reaction, are more successful than at any subsequent period, but are not nearly so successful as amputations performed previous to the sixth hour. (4) Amputations performed between the forty-eighth hour and seventh day, or in the intermediary period, are more fatal than at any time prior or subsequent to that period. (5) Amputations performed after the seventh day, or in the secondary period, are more fatal than amputations performed at any time prior to the forty-eighth hour after the receipt of the injury. We pass over those sections of the paper relating to the influence of the place and method of amputation upon the amount of atrophy of the stump, and come to the effects of transportation on gunshot fractures and amputations. Many of the disastrous results of amputation in the lower extremities have been attributed to immediate transportation such as the sloughing of flaps, gaping of wounds, protrusion of bone, &c. Although there is, undoubtedly, some truth in this very prevalent opinion, the statement must nevertheless undergo certain modifications. The unfavorable results are often to be attributed to conditions which military exigencies necessitate, or which are the result of negligence. During General Sherman's long marches from Atlanta to Savannah, and from the latter place northwards, the amputation cases did uncommonly well. It ought to be remembered, however, that the army marched through a pleasant country with good roads, and that the men were in good physical and mental condition, with a plentiful supply of fresh food of every kind. Similar results have been experienced by the surgeons of our own army in India; the amputation wounds of those soldiers who were borne on the march progressing most favorably towards healing, while the result of similar cases left behind and treated in hospital was often most unhappy. During the late Franco-German war, the system of evacuation, however useful from military and sanitary points of view, entailed great suffering on the wounded, and no doubt a fatal issue in many cases. To be successful, good roads and vehicles, a plentiful supply of food, water, and dressings, with an adequate number of attendants, are necessary. In the case of wounds involving the fracture of long bones, however, the effects of transportation are most unfavorable. To say nothing of the suffering to the patients, the irritation set up by the movement of the fractured bones is very likely to be followed by osteo-myelitis. Out of six cases of compound fracture after the battle of Jonesboro', but *one* recovered, where every circumstance seemed most favorable. On the other hand, out of thirty-five cases of amputations, only four proved fatal, and two of these were secondary amputations.

A part of Dr. Stephen Smith's paper may be considered in the light of an appendix to the foregoing analysis. It is devoted to the subject of amputations at the ankle-joint in military surgery, and will probably be new to most of our readers. Amputation at this joint was a comparatively infrequent operation in the American as in other wars. Out of 9705 amputations, but 67 ankle-joint amputations have been fully ascertained at the Surgeon-General's office. The medical director of the army of the Potomac pulished an order to the effect that amputation at this joint by Pirogoff's method, in preference to amputation through the leg, was to be carried out whenever practicable. The subject is discussed by Dr. Stephen Smith in a very satisfactory, and practical manner, and it is one well deserving of consideration. The conclusions at which he has arrived are the following:—1. Ankle-joint amputations are fifty per cent. less fatal than leg amputations. 2. They are three per cent. more liable to be followed by re-amputation than leg amputations. 3. The stumps left after ankle-joint amputations are far more serviceable than those resulting from leg amputations for unassisted locomotion. 4. An artificial limb can be far more usefully applied to an ankle-joint than to a leg stump. It may be stated in general terms, that the experience of the American war has established the fact that ankle-joint amputations are less fatal than leg amputations, but that sloughing and necrosis are more likely to occur in the former than in the latter; that the resulting stump in ankle-joint amputation is much more favorable for unaided or aided progression than in leg amputation. The correct inference from these conclusions is that ankle-joint amputations should be recognised as occupying an important place among the legitimate operations of military surgery.

Among the real and alleged causes of failure after this operation, sloughing of the flaps, necrosis, sensitiveness of the stump, and tendency to displacement of the heel-flap backwards by the action of the muscles of the calf, are enumerated; and it is asserted by some that, owing to the large size of the posterior flap and its imperfect nourishment, the stump will not endure transportation. The facts do not, however, appear to be sufficient to decide the last point. The other objections receive due consideration; and the subject is concluded by a critical examination of the comparative value of the methods of amputation at the ankle-joint by Syme and Pirogoff.

Foreign Gleanings.

PROGNOSIS IN CARDIAC DISEASE.

Dr. Loomis lately presented to the Medical Society of New York a report of ninety autopsies of subjects affected with disease of the heart. Lesions of the valves, hypertrophy, and dilatation were found together in fourteen cases, and among these seven died of the heart disease. Death was sudden in only one case, and mainly caused by narrowing of the mitral and tricuspid orifices. In fifteen cases the valvular lesions were complicated with hypertrophy, and of these eleven died of the cardiac affection. Death was sudden in five cases, thus divided: aortic disease, one case; mitral, one; both together, one; mitral and tricuspid, one; mitral and pulmonary, one. In forty-six cases, where the valvular lesions were free from complications of hypertrophy or dilatation, only two patients died from actual disease of the heart, death being sudden in neither case. Altogether we have twenty-six cases out of the ninety where death was caused by the heart complaint, the end being rapid in nineteen cases. Sudden death from the cardiac lesion occurred in ten of these latter cases; in the nine others the sudden death was brought on, four times by cerebral apoplexy, in four by uræmic convulsions, and in one by croup. In sixteen cases the cardiac lesion was followed by slow death, and in sixty-four cases the patients died of complaints unconnected with heart disease.

Regurgitating murmurs are very important signs as regards diagnosis, but of much less value in respect of prognosis. The loudest and roughest bruits de souffle are not necessarily followed by rapid death. When such souffle is uncomplicated with hypertrophy or dilatation the prognosis is relatively favorable. But when hypertrophy and dilatation occur. several complications may arise, and prognosis becomes very serious. Dr. Gairdner states, in his "Clinical Medicine," that he knows a patient who has had mitral narrowing for the last thirty years. Dr. Loomis himself has had under his care, for the past eight years, a patient, in apparently good health, with enormous aortic insufficiency; he has suffered three attacks of pneumonia. In this case, however, there is no dilatation. The valvular lesions which occur during the development of the organism are more rapidly fatal than those which happen at an advanced period of life. Dr. Flint thinks that aortic disease is the most dangerous; but Dr. Loomis considers mitral insufficiency just as perilous, and his opinion seems fully justified by the statistics given above.

INTERNAL URETHROTOMY.

In the *Lyon Médical* (February, 1871), M. Peuch states that a patient, aged fifty-six, had a stricture situated in the membranous portion of the urethra, which was divided with Maisonneuve's urethrotome. A full-sized instrument could thereupon be passed, and the bladder was evacuated. In a few hours the temperature rose from 37·8° to 41° C., and the patient fell into a very critical state. His end was hourly expected, but he eventually rallied, and eleven days after the operation he left the hospital able to pass a good stream. M. Peuch draws attention to the rapidity with which the severe pyrexia occurred, and compares urethrotomy with some surgical operations practised on unhealthy tissues. He thinks that, previous to such measures, diluted alcohol, or a solution of carbolic acid, should be brought in contact with the parts. In the case of the urethra such fluids might be injected through the full-sized catheter, used after the division of the stricture, and this antiseptic lotion might thus perhaps prevent the absorption of noxious gases or secretions. It may be objected to the author's view that the present case is isolated, and that many operations are performed within and without the urethra with very little subsequent fever.

SKIN-TRANSPLANTATION.

Dr. Czerny, of Vienna, has undertaken experiments with the epithelium by means of a piece of uvula which had been excised. He buried small portions of it in the granulating surfaces left after amputation of the breast, in two patients. One trial failed, but in the other a satisfactory island formed, which eventually joined the advancing margins of the wound. Transplantation from the dog or rat upon man, or *vice versâ*, did not succeed. Dr. Stricker, however, stated, at a meeting of the Medical society of Vienna, that a Russian physician had successfully transplanted the skin of his own thigh upon a dog. Dr. Czerny, urged by Billroth, excited a granulating surface in a dog by means of a seton, and connected with the pouch thus formed pieces of cancer from the lip and breast, by means of sutures. Four such experiments failed entirely.—*Allg. Med. Cent. Zeit.*, May 6th, 1871.

REVACCINATIONS.

Dr. Perroud, secretary to the Vaccination Committee, presented, on the 23rd of March last, a report to the Medical Society of Lyons, in which the advantages of vaccination during the epidemic of variola which has raged in that city are lucidly exposed. Among several important remarks, we especially noticed the advice of not resting satisfied with negative revaccinations. When the latter fail, they should be repeated; as it has been known that, in such cases, the disease has broken out and proved fatal. We should go on revaccinating, M. Perroud thinks, until proper vesicles are produced.

CHLORAL HYDRATE AND COD-LIVER OIL.

The *Gaz. Farm. Ital.* advocates the addition of chloral hydrate to cod-liver oil, which renders it much less nauseous, and prevents the night-sweats of the phthisical invalid, induces sound sleep, and creates appetite. It is prepared as follows:—Ten grains of pure chloral hydrate crystals to one hundred and ninety grains of cod-liver oil, digested in a sand-bath with gentle heat. Dose, six tablespoonfuls daily.

News Items, Medical Facts, &c.

The American Twin Monstrosity.—The *Medical Times* (Philadelphia) contains a clinical lecture by Dr. William Goodell, Lecturer on the Diseases of Women and Children in the University of Pennsylvania, on the case of the twin monstrosity. The twins, Mina and Minnie Finley, were born on the 12th of October last in Ohio State. The mother in the fourth month of pregnancy met with a severe fall, and narrowly escaped a miscarriage. There was one placenta and cord. The monstrosity consists of two individuals, fused together on a common longitudinal or vertebral axis, by one pelvis common to both. Each pole of the common vertebral column terminates in a head, whilst each individual is normally developed as far as the pelvis. On one side of this appear two perfectly formed legs, one of which belongs exclusively to Mina, the other to Minnie—a fact proved by tickling each foot alternately. Between those limbs are situated one anus and one set of genital organs of a female. On the opposite side of the pelvis projects a rudimentary limb made up of lateral halves, contributed equally by each individual. It contains a broad femur deeply furrowed in the median line, two tibiæ, and two fibulæ, and ends in a foot furnished with two calcanea, two big toes, and six little ones. The vascular and nervous systems of each indidividual are independent and distinct. Thus the pulse in one was faster than that of the other; and while one was asleep and motionless, the other was lively and awake. One of the children is weak and puny, and the other healthy and active. As Dr. Goodell remarks in his lecture, this form of monstrosity is by no means unique, and he proceeded by a reference to different works on Teratology to prove the correctness of this statement. In all the other cases, however, with a single exception, death has taken place before the fifth day. The lecturer held that the decease of one would involve the death of the other—a result which the history of other cases, such as Rita and Christina and the Hungarian sisters, had shown to have taken place.

According to an official report, the German loss in military surgeons during the war amounts to not less than 101; namely, 72 killed in battle, 25 carried off by disease, and the rest by accident. Considerable as is this sacrifice, which was greatest at Gravellotte, it is regarded at Berlin as slight compared with that in other campaigns, especially in the Crimean one.

Ovariotomy in Paris.—M. Panas has communicated to the Surgical Society of Paris (July 26th, 1871) the account of an operation of this kind. Both ovaries were diseased, the cysts were multilocular and contained much colloid matter. A clamp was used on the right side but not on the left. The patient died of peritonitis.

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JAMES G. WAKLEY, M.D., M.R.C.S., EDITOR.

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Clinical Lectures

ON

DISEASES OF THE CHEST.

Delivered at Charing-cross Hospital.

By Hyde Salter, M.D., F.R.S.,

Fellow of the Royal College of Physicians, Physician to Charing-Cross Hospital, and Lecturer on the Principles and Practice of Medicine at its Medical School.

LECTURE III.—Part I.

ON AURICULAR PERICARDIAL FRICTION, AND SPHYGMO-PNEUMAL SYNCHRONISM.

Gentlemen,—There are two classes of clinical phenomena; the first essential, typical, diagnostic, imparting to the morbid states in which they occur their characteristic impress and physiognomy, determining our opinion as to their nature—often, moreover, so indicative of the kind and seat of the trouble the body is laboring under, and of the direction in which danger is to be apprehended, as to be highly suggestive of the appropriate treatment; the other, non-essential, accidental, intercurrent. There can be no doubt as to which of these two classes has the strongest claim on our attention. The first has all the interest of the second, *plus* its own paramount importance. The second we *may* study; the first we *must*. Nevertheless, these non-essential and eccentric clinical phenomena are well worth our attention. They are facts; and who shall limit the importance of a fact? We must never forget that clinical medicine is a natural science, and in all natural sciences facts are things of paramount importance and supreme interest. Always feel, gentlemen, to a fact the reverence that a Chinaman does to a piece of printed paper—never throw it away. The building up of a science by the gradual accumulation of facts is like the putting together of a child's puzzle; as the construction advances, fragments are found to fit in whose place and use in the early part of the process were never suspected. We can never predict from day to day when the clinical phenomena of Class 2 shall become those of Class 1—when the apparently accidental and erratic shall become the essential and diagnostic.

These observations of mine are meant to be somewhat apologetic (if any apology is needed) for directing your attention to-day to two or three cases presenting certain physical signs that are rather critical and curious than anything else, and whose interest may be said to begin and end *with* their interest. They are, however, phenomena whose observation and discussion is, I think, calculated to encourage and enforce that habit of close and painstaking scrutiny, that *prying* scrutiny, with which all clinical facts should be observed—calculated, as far as they go, to make you observers; and remember that if the student of clinical medicine is not an observer he is nothing..

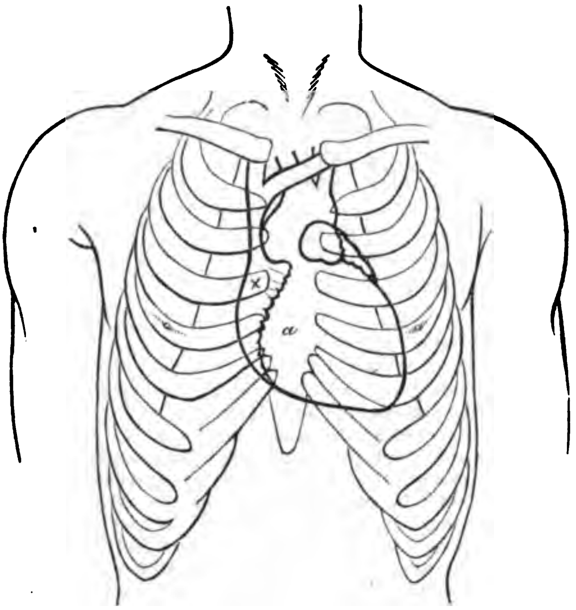
Case 1.—William B——, aged twenty-one, by occupation a printer, always had fairly good health till three years ago, when he experienced an attack of acute rheumatism which confined him to bed for six weeks, and from which he did not recover for ten months, getting better and worse alternately. After his recovery he experienced great shortness of breath and palpitation whenever he became excited or walked fast. This has continued, more or less, up to the present time.

About a month ago he was seized with slight pains in his limbs, and applied to Dr. Pollock as an out-patient at this hospital. He became much worse, and was soon compelled to give up work from the severity of the rheumatism which affected all his joints. A week since he felt, on drawing his breath, great pain in his left shoulder, but none exactly over the region of the heart.

On admission he was suffering from pain over the sternum, in the arms, shoulders, legs, and feet; he breathed with great difficulty, the least exertion rendering him completely breathless—even rising in bed. Thirst great; tongue coated; breath offensive; feet slightly œdematous; skin perspiring freely; bowels regular; pulse 92; respiration 45; temperature 102·4°.

Physical examination.—On listening over the cardiac region a loud, flat, rasping to-and-fro sound is heard, of greatest intensity at mid-sternum opposite the fifth cartilage, gradually becoming feebler on passing down the margin of the right ventricle towards the apex, becoming distant on passing to the left side. On passing upwards and to the right this sound becomes *triple* instead of double, with a rhythm reminding one of canter—*rub-a-rub* instead of *rub-rub.* It is when fairly over the auricle, in the right third intercostal space, close to the sternum (Fig. 1, *x*), that this triple character of the friction-sound is best marked; and I feel no doubt that the addition of the third element of sound on passing from the surface of the ventricle to that of the auricle is due to auricular pericardial friction. It seems that at first I had the impression that of these three sounds, the second coincided with the radial pulse—that is, with the ventricular systole, the third with the ventricular diastole, and the first, which was presystolic in its time, with the auricular systole; and that I conceived them produced by, in the order of time, auricular systolic friction, ventricular systolic friction, and ventricular diastolic friction. But I afterwards clearly made out, and my opinion was confirmed by others, that it was the third element of sound that coincided with the radial pulse, and therefore that both the others were presystolic in time. The sounds were just the same as before, and had, at and near the auricle, just the same cantering character as before; therefore I cannot but conclude that they were effected by the same agency. The most spontaneous and *primâ facie* explanation that would suggest itself to the mind, of a double friction over the auricle preceding the systolic friction, would be that the first was due to the auricular systole, the second to the auricular diastole, and then the third to the ventricular systole. The rhythm and mechanism of the frictions, on this hypothesis, would be represented thus:—

FIG. 1.



Auricular systole
Auricular diastole
Ventricular systole
Ventricular diastole
Rub-a-rub.

Auricular systole
Auricular diastole
Ventricular systole
Ventricular diastole
Rub-a-rub.

Auricular systole
Auricular diastole
Ventricular systole
Ventricular diastole
Rub-a-rub.

Auricular systole
Auricular diastole
Ventricular systole
Ventricular diastole
Rub-a-rub.

But this would imply that the relaxation of the auricle took place before the contraction of the ventricle, and preceded it by an appreciable interval. Now I think that any one who has watched the contractions of a mammalian heart will agree with me that, whatever else is doubtful, it is quite certain that the auricular diastole and the ventricular systole are absolutely contemporaneous—necessarily contemporaneous; for the principal movement that attends the ventricular systole, the descent of the auriculo-ventricular zone, involves of necessity a proportionate enlargement of the auricle, and is indeed the chief mechanism of that enlargement; just as the shifting of a septum between two chambers involves the enlargement of one to the same extent as it diminishes the other.

If, then, this is not the explanation of this triple murmur—if the auricular diastole does not precede the ventricular systole, but coincides with it—then, I think, the explanation of the friction-sounds, and their connexion with the rhythm of the heart, must be as follows:—

Auricular systole
Ventricular systole
Ventricular diastole

Auricular systole
Ventricular systole
Ventricular diastole

Auricular systole
Ventricular systole
Ventricular diastole

Auricular systole
Ventricular systole
Ventricular diastole

Rub-a-rub. Rub-a-rub. Rub-a-rub.

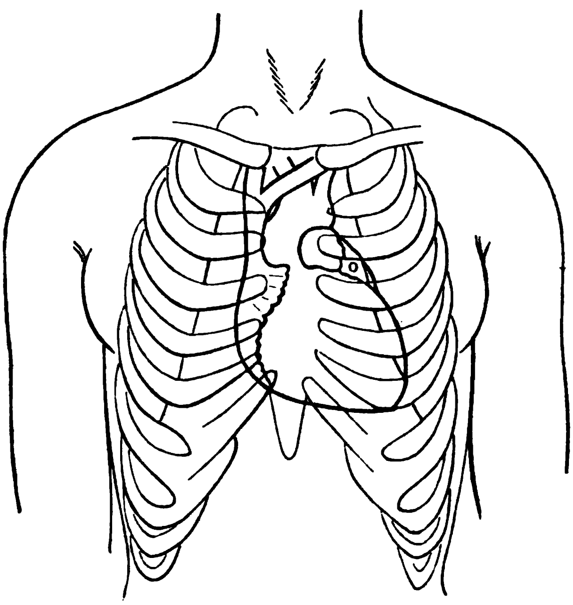
In either case it will be seen that the third element of the triple sounds coincides with the ventricular systole; of this there was no doubt. But in the last hypothesis the first of the three is the previous diastole, then the auricular systole, and then the ventricular. I think I might have verified the correctness of this last view if I had verified which two elements of the triple sound became the sole elements of the double sound on passing down from auricle to ventricle—which parts of the triple sound the parts of the double sound corresponded to. I regret to say, however, that I did not make this attempt till the triplicity of the sound had passed away. There is one circumstance that is strongly confirmatory of the correctness of the latter explanation. It is this: the third element of sound heard loud over the ventricle was evidently produced by the friction of the ventricle, for it coincided with the radial pulse and the ventricular impulse. I do not think a ventricle so roughened, and giving so loud a friction-sound with the systolic twist, could fail to produce a friction-sound at the diastolic counter-twist. Now the first explanation imagines the diastole of the ventricle to be soundless. No doubt you do sometimes get a systolic friction-sound which is single, there being none at the diastole; but, as far as I have seen, this is when the seat of the roughness is at or near the apex, where the systolic impulse makes the contact of the surfaces, especially the anterior surface, more forcible at that time, and where you may almost say the surfaces are withdrawn from one another at the diastole. In this case, however, the part of the ventricle where the friction-sounds were most intense was near the base.

The triple sound over the auricle continued for many days; one of the three elements then became indistinct, and then ceased, the sounds being everywhere simply to and fro. In a day or two more this double sound began to lose its clearness and force, becoming daily conspicuously more feeble; and in three or four days more cleared away altogether, leaving the sounds at the base, as I believe, natural, and a systolic mitral murmur, of almost musical character (which had been detected when the friction-sound was in full force), more conspicuous and clearer than ever. With this improvement in the physical signs, however, a commensurated improvement did not take place in the general condition of the patient; indeed he appeared to get daily worse, especially in relation to the embarrassment of his breathing. The signs of moderate pericardial effusion then revealed themselves, consisting of an upward extension of the cardiac dulness, an upward transference of its impulse, which was plainly felt and seen between the third and fourth and fourth and fifth ribs, an entire loss of it in its natural situation between the fifth and sixth, and some sense of distance and muffling of the apex-systolic murmur, which also lost its musical character. I do not, however, think that the loss of the friction-sound at and near the base of the heart was due to the effusion, for the following reasons: (1) they were already fading away before the signs of effusion showed themselves; (2) the natural first and second sounds at the base, which revealed themselves on the disappearance of the friction-sound, were clear and superficial in character; and (3) the other signs of effusion were not such as to point to an amount of fluid sufficient to imply, in the position of the patient, the mounting of the effusion up to the base. Nor, in the second place, do I think that the extended area of cardiac dulness was due simply to the effusion; it existed in a great degree before, when the almost universal friction-sound showed that the pericardial surfaces were everywhere in contact. I have no doubt that the young man's heart is considerably hypertrophied, that this hypertrophy is of some standing, that the prominence of the left cartilage is due to it, that it dates from the attack of rheumatic fever three years ago, and is probably the result of mitral disease then inflicted, of which the systolic apex-murmur now existing is a sign.

Now let us leave for the present Wm. B——'s case, and turn to another case that we have recently had under our observation, bearing in an interesting way on this same subject of auricular pericardial friction.

Case 2.—Annie H——, aged twenty-nine, a servant of one of my colleagues, was admitted into the hospital on September 28th, suffering from symptoms of albuminuria—pain in the back, headache, debility, extreme pallor, slight puffiness of face and limbs, and urine highly albuminous. The heart's action was unduly strong, and there was at times a good deal of drowsiness. Her condition fluctuated from day to day in the characteristic way, and she took the ordinary remedies with some temporary improvement. One day, on going to her bedside, she told me that she was suffering a good deal from pain on the left side of the chest, and, indicating the spot, placed her finger on the third left rib, about an inch to the left of the margin of the sternum. On applying the stethoscope in this situation (Fig. 2, *o*) I heard what appeared to me to be a presystolic murmur: it was distinctly presystolic in time—clearly later than the diastole, and ending at the first sound; soft and single in character. I at once transferred the stethoscope to the apex, expecting to hear it there in greater force; but what was my astonishment to find that not a trace of it was to be heard! I went up again to the original spot, and there it was as before; and then I found that it was restricted to a very small area, that it was not heard over a space larger than a half-crown, beyond that being lost in every direction. I was perfectly unable to explain it—could not even attempt or conceive any explanation. That the maximum intensity of a presystolic murmur should be at the apex I regarded as a clinical fact without an exception, and I could construct no theory which would explain the conduction of the vibrations of a mitral constrictive murmur to the base of the heart and leave them inaudible at the apex. The girl died a few days afterwards, and the post-mortem cleared up the whole mystery. The left auricle was covered and roughened with lymph, the result of recent pericarditis; the roughening was confined to the surface of the auricle, and therefore the friction-sound coincided with the movement of the auricle. This explains the presystolic period of the sound—it occurred at the same time as ordinary presystolic murmur because it was produced by the same cause, the contraction of the auricle. This revelation made what seemed so mysterious as simple and intelligible as possible, and showed that there may be such a thing as presystolic pericardial, as well as presystolic endocardial, murmur. If you look at this diagram you will at once see why the murmur was localised at the spot at which we heard it; you will see that it exactly corresponds with that part of the left auricular appendage (Fig. 2, *o*) that turns forward, and, as it were, embraces the left border of the pulmonary artery. A line passed back through the focus of the sound would have gone straight into the auricle.

Fig. 2.



Having now brought you, in the two cases I have just related to you, from the right auricle to the left, let me in the next take you back to the right again. The case is, like the preceding, one of uræmic pericarditis.

Case 3.—Alice R——, aged forty, was admitted on the 26th of October, breathless, œdematous, cyanosed, unable to lie down, with mucous rattle all over her chest, and apparently dying from bronchitis. She was spitting profusely muco-pus, and sat bolstered up in bed, laboring for her breath, and coughing and spitting up this stuff, for several consecutive days and nights. The œdema was greatly developed, and had risen as high as the trunk. The urine was found to contain an enormous amount of albumen, and on being set aside for microscopical examination threw down a scanty precipitate of the characteristic white, shreddy, organic deposit, which on examination was found to consist of casts and epithelium, the casts being small and imperfect, and the epithelium, some free and some in the casts, loaded with oil. She was ordered carbonate of ammonia, spirit of chloroform, henbane, and senega every four hours, and twenty grains of compound scammony powder every other morning. After three or four days the urgency of the dyspnœa abated, the cyanosis became less marked, and she was able to forego the erect posture in some degree. In a few days more the dyspnœa was greatly reduced, the cyanosis almost gone, the expectoration diminishing, and the moist bronchial sounds much less considerable. She was able now to give an account of herself, and stated that she was quite well up to last May, when, on the 3rd, she took cold; the cold fell upon her chest, and gave her cough, expectoration, and shortness of breath, which have never left her from that time; on the contrary, they gradually became worse and worse, and a fortnight or three weeks before her admission the feet and legs began to swell. Previous to the cold in May her health was perfectly good.

Although in a week or two the crepitation that had existed all over the lungs when she was admitted almost entirely cleared away, and her breathing became quite easy and tranquil, the œdema rather increased than diminished. This, together with the condition of the urine, showed that the case was essentially a renal one, and I have no doubt that the bronchitis with which she came into the hospital was, partly at least, uræmic. The bronchitis ceased to be a subject of primary anxiety, and experienced still further mitigation. The ordinary treatment for chronic renal cases of such character was adopted, but without much relief, or much hope of it. One circumstance that greatly limited the efficacy of such treatment, and indeed limited its application, was the patient's extreme debility, which rendered her unable to bear the hot-air baths and the hydragogues which were tried.

Her case now followed the usual course of such cases, fluctuating from day to day, but gradually losing ground, when, one day, on examining her chest, it was found that there was a cavity in the right lung at the level of the third rib, about two inches from the right border of the sternum. This was pointed out to me, and in exploring the neighborhood I came upon a loud and clear pericardial friction-sound, at the inner extremity of the third intercostal space, close to the margin of the sternum —between, that is, the third and fourth right costal cartilages. (See Fig. 1, *x*.) Its seat of maximum intensity was not bigger than a shilling, and was exactly confined to the spot I mention. It was distinctly less strong either at the third or fourth cartilage than it was between them; moreover, it soon became faint and was lost in passing from this spot in any direction—up, down, right, or left; in the fourth intercostal space it was faint, in the fifth it was lost; at mid-sternum, opposite the third space, it was faint; at the left margin, on the same level, nothing could be heard of it. On first coming across it I expected I should find it extending down over the right ventricle; but in no other situation than that I have mentioned could it be heard. Now, if you look at the diagram of Wm. B——'s case, you will see that the spot I have indicated there by the letter *x* as being the seat of the triple friction-sound, exactly corresponds to the seat of the friction-sound in this case and to the right auricle. It was clear, then, not only that we had got here auricular pericardial friction, but that the inflammatory roughening was confined to the auricle, and that the movements of the ventricular portion of the heart had nothing to do with the production and rhythm of the sound.

It became interesting therefore, especially in relation to the case of Wm. B——, to ascertain at what time in the heart's rhythm the friction-sounds in this case occurred, and what relation they had to the systolic and diastolic periods. To this point, therefore, I paid particular attention, and I made out most clearly the following points:—

1st. The sound was double—it was a *to-and-fro* sound; and of the two sounds the first was the loudest, the second being decidedly softer and fainter.

2nd. Of these two sounds, the second exactly coincided with the ventricular impulse and natural first sound of the heart, and with the pulse at the wrist.

3rd. The first and louder of the two sounds did not precede the second so far as to extend back to the preceding diastole, but occupied an intermediate position between the systole and previous diastole; in other words, it was presystolic.

This therefore cleared up all doubt as to the reading of Wm. B——'s case. There could be no doubt that the pericardial friction in this case of Alice R——'s was auricular, and solely auricular; there could be no doubt that the first and louder and rougher sound coincided with and was caused by the auricular systole; there could be no doubt, therefore, that the second and fainter friction-element coincided with and was caused by the auricular diastole; but this coincided with the impulse and natural first sound of the heart; *ergo*, as plain as Euclid, an auricular diastolic friction-sound must coincide with a ventricular systolic one—just, in fact, as we should expect. But the third element of the triple friction in William B——'s case was clearly made out to be ventricular systolic; therefore the one that preceded it could not have been auricular diastolic, as that is synchronous with the ventricular systolic, but must have been auricular systolic; and thus there will be nothing left for the first but the ventricular diastole. My second scheme therefore, in explanation of the genesis of that triple murmur, must be correct.

A day or two after the appearance of the auricular friction the sound spread down over the ventricles and became general, and a day or two after that the patient died. At the post-mortem examination the pericardium was found to be the seat of recent general inflammation, and was everywhere roughened with soft lymph.

Case 4.—I have seen yet a fourth case, in private practice, in consultation with my friend Mr. Buxton, of Islington, the exact counterpart, as far as the physical signs go, of Alice R——'s case. The patient was a lady in middle life, who had had frequent attacks of subacute rheumatism, and was suffering at the time I saw her from symptoms of a rheumatic character. The friction-sound was very circumscribed, was seated exactly at the extremity of the third interspace close to the sternum (Fig. 1, x), and the first and loudest of its two elements was sharply presystolic in time.

Now, gentlemen, I have directed your attention thus minutely and thus at length to this subject of auricular pericardial friction for the following reasons:

First: That I might prevent your being at any future time puzzled when you come across similar cases in your own practice. Triple friction, as far as I know, is a new thing, or rather I should say an undescribed thing, for no doubt it is as old as the hills—as old as pericarditis itself. But having had it once pointed out to you, you will, if you should ever meet it, at once identify it and give it its true place.

Secondly: That I may guard you against mistaking it for evidence of mitral narrowing—in fact, for presystolic murmur. You might think that as presystolic murmur was generated by the contraction of the auricle, there would be nothing extraordinary in hearing it *over* the auricle, and come to the conclusion that what you heard was true presystolic murmur. This might involve not only an erroneous diagnosis, but very likely an erroneous prognosis too; and would puzzle you beyond measure if you found the sound entirely vanishing in a day or two, or if you discovered after death an unconstricted mitral orifice.

Thirdly: Because a knowledge of the facts and considerations that I have been pointing out to you will enable you at once to recognise such a sound as inevitably pericardial, pericardial beyond alternative, and to place at least this form of friction-sound —friction-sound occurring at this time and place— out of that category of friction-sounds that may by possibility be confounded with endocardial murmurs.

Fourthly: Because it illustrates the value of convection and of a knowledge of its operation in localising endocardial murmurs. It was my knowledge of the influence of convection in bringing presystolic murmur sharp to the apex, and draughting it away, so to speak, from the upper part of the heart, that forbade my giving the sound in the case of Annie H—— the otherwise obvious interpretation that its presystolic date suggested, that showed me there was something inexplicable about it, and kept my mind in suspense till its true and latent explanation revealed itself.

Fifthly: Because it is an interesting confirmation of the correctness of our present notions of the physiology of the heart with regard to the precise time of the contraction of its several cavities, and shows us that what we see taking place in the exposed heart of a narcotised mammal in exactly what is taking place in the normal human heart *in situ*—it is clinical evidence corroborating physiological experiment.

LECTURE VIII.—PART II.

ON CONCURRENCE OF THE RESPIRATORY AND CARDIAC MOVEMENTS—SPHYGMO-PNEUMAL SYNCHRONISM.

And now, gentlemen, let us return to W. B——; and let me introduce you to some very curious phenomena that occurred in this case in connexion with the heart's rhythm, the like of which, at that time, I had never seen in any other case.

On Tuesday, January 5th, when in the hospital, I was requested to go up into the Bow ward and see this patient, as he was supposed to be dying. I found him very pallid and breathing with great hurry and labor, and on listening to his heart I found, to my astonishment, two things: first, that it was beating very slowly; and, secondly, that its pulsations exactly coincided with the respiratory movements—a breath for a beat, and breath for a beat—in unbroken and most exact correspondence, the inspiration and expiration corresponding to the two sounds of the heart. I thought there must be some mistake, and that the impression must be deceptive, and felt the pulse; but this only showed that my first impression was correct. I counted both pulse and respirations, and found them each exactly 58 in a minute; their coincidence could even be seen, the visible fluctuation in the cardiac region having the same relation to each respiratory movement of the entire chest-wall. The effect of feeling the pulse while you looked at the breathing was very curious; it seemed as if each respiratory act was pumping the blood into the radial artery, so exactly did the one coincide with the other, and I believe that any uninitiated person, feeling the one and watching the other, would have come to that conclusion. My clinical clerk, Mr. Conolly, observed the phenomena with me, and was equally struck with them. This you see, gentlemen, amounts to the reduction of the pulse-respiration ratio to a unit, for the fraction 58–58=1, a thing I never before saw in my life.

The next day another curious state of things awaited me. I found, as before, an exact coincidence between the movements of the heart and lungs, but now there were exactly two beats of the heart to one respiratory act, instead of one-and-one as before; one complete beat going to inspiration and the next to expiration. Now I should think nothing of such a thing continuing for a short time, for a dozen beats or so; but it did not cease at a dozen beats, or at any number of beats. I should think nothing of two horses in a carriage trotting step for step together for a hundred yards (except that they were remarkably well matched horses), but if they *never* trotted anything else *but* together I should conclude there was some concert between them. As long as I felt the pulse I could not separate two pulsations from one respiratory act, so that it seemed as if there was an inspiration-pulse and an expiration-pulse. What was the most striking thing of all, and showed that the coincidence was not accidental, was that the rate of the pulse and breathing was by no means constant, at one time being considerably faster, at another slower, and yet in spite of this variation they remained exactly together. This left me no doubt that the rate of the one depended on the rate of the other, although which was the regulator, and which the one influenced, it left undetermined. I should think most likely that the breathing accomodated itself to the heart's action rather than *vice versâ*, as breathing is voluntarily regulable, and the heart's beat not. There was a great deal of præcordial distress, and the boy may have been involuntarily conscious of his heart's rhythm, and somehow the accomodation of the respiratory movements to its beat may have tended to mitigate his distress, and so have been instinctively prompted. However that might be, the rate of the one was clearly influenced by the other. My friend Mr. Conolly also observed *this* phenomenon with me.

The next day another curious change awaited me; there was no longer any connexion between the heart's action and the respiration, but the heart itself had taken up a curious rhythm, such as I never remember to have observed before. The beats went in couples, two being close to one another, and then two more. It could neither be called an irregularity nor an intermission. It was certainly not an irregularity, for it was singularly regular; and it was not an intermission, for there was not a sufficient lapse of time between the "couples" for a suppressed beat to be inserted. As far as I could make out from repeated observations, the intervals between the couples were half as long again as the two beats of the couple were from each other; counting rapidly and regularly, I found that if I counted two from one beat to another of a couple, I counted three from the last beat of a couple to the first of the next. This peculiarity was first observed on Thursday, Jan. 7th; on the 8th it was still maintained. On the 12th the peculiarity of the pulse had ceased; it then merely intermitted about every fourth beat. What fluid there had been in the pericardium appeared to have been completely absorbed, as the apex beat had become clear; it was to the left of its natural position, and the impulse of the heart was heard loud all over the chest. On the 13th all intermission of the pulse had ceased.

The patient continued to improve, and left the hospital with very little dyspnœa, and no physical sign but that of mitral regurgitation, at the latter part of March.

You will observe, gentlemen, in this interesting case, two very distinct things: one, an unbroken and evidently not accidental, correspondence between the cardiac and respiratory movements; the other, the assumption of a peculiar rhythm on the part of the heart itself. I have since seen the counterpart of both these phenomena in other cases. Let me relate them to you.

One day in last June—I have not noted the day—I was called to see a gentleman, recently come from the Continent, who had suffered for five years past from recurrent attacks of profuse hæmoptysis. I found him with all the symptoms and appearance of advanced phthisis. On examining the chest, I found the left side fallen in, front and back, with very little movement; large cavitory sounds existed above; below, bronchial respiration in front, hardly any behind. Percussion was dull everywhere on the left side, except in front above, where it was tympanitic. From the extent of the cavitory sounds, I inferred that the cavity at the left apex was not less than two inches in diameter every way. The heart was drawn upwards, I suppose by adhesions and the contraction of the cavity, so that the apex beat at the fourth interspace; the heart's impulse was plainly felt, and loud as high as the second interspace. There was no cardiac murmur of any kind. Pulse 99; respiration 33; pulse-respiration ratio therefore one-third exactly.

While I was listening to the heart I was struck with the uniformity with which the heart's action and the respiration coincided, and on turning my attention to this point I found there was, in fact, an unvarying coincidence, there being exactly one respiration to every three beats of the heart. Of these three beats one coincided with the inspiration, and the remaining two with the expiration and pause. I listened for some time, thinking that the coincidence was accidental, and would soon be broken: but I waited in vain for any break, and the longer I listened the more satisfied was I that the thing was not accidental, but that the patient was unconsciously regulating his respiration by the action of his heart. After listening some time, and getting quite tired of doing so, I ceased for a while, with a view of renewing the observation, and seeing if I again found it so. On again applying my ear to the stethoscope, there was the same unvarying correspondence—inspiration to beat one, and expiration and pause to beats two and three. I then asked the patient if he was breathing purposely at the exact rate he was, and if he adopted that particular rhythm from finding it fall in with the heart's movements, and I endeavored to make him understand what I had observed. But he said he was not aware of the movements of the heart, and that he breathed as he did simply because it was the rhythm and rate that unconsciously suggested itself to him.

I have seen one if not two other cases in which the same thing temporarily existed, but unfortunately I have not preserved notes of them.

The explanation of this curious phenomenon which I am disposed to adopt is that which I have just suggested—that it is an accomodation of the respiratory movements (perhaps quite unconsciously to the patient) to the movements of the heart. In both the instances that I have related there was an unnatural "solidarity" between the lungs and the heart, and the lungs would probably be from this circumstance abnormally perceptive of and effected by the heart's movements. For in W. B——'s case the event proved, as I shall presently relate to you, that at the time my observations were made the pericardium had become universally adherent, while pleurisy had partially agglutinated it to the lung; and in my phthisical patient there is reason to believe, from the heart's being dragged upwards, that the lung in the neighborhood of the cavity had become adherent to the pericardium. Now under such circumstances one can conceive that the adaptation of the respiratory movements to those of the heart would tend to prevent the drag or jar that the unnatural connexion of the two organs might render their independent movements mutually productive of. The effect would be exactly the same as "rising to the trot." Lungs that rose to one beat of the heart and fell to the other would be less perceptive of the heart's movements than if the relation between them was irregular. It would tend to prevent the kind of thing that gives rise to the "beat" in musical vibrations—the movements being at one moment concurrent, at the next opposed. I think some such explanation as this must be the true *rationale* of the phenomenon, however unconscious the individuals who exhibit it may themselves be of it. Such a concurrence might result from movements entirely automatic in their nature.

Now what name shall we give to this curious clinical fact?—for we must call it something or other, or else resort, whenever we speak of it, to a long and inconvenient peri-phrasis. I have a great horror of anything pedantic, or that appears pedantic, and a great liking for giving expression to my ideas in simple vernacular whenever I can; nevertheless, in spite of this antipathy and this proclivity, I would venture to suggest for this occurrence of the respiratory and cardiac movements the sesquipedalian name of "sphygmo-pneumal synchronism." The name expresses exactly what the thing is, and I doubt if it can be conveyed more concisely.

And now let me relate to you two more instances in which I have met with the counterpart of the other phenomenon of Wm. B——'s case—namely, the couple-rhythm of the heart's pulsations.

William Br——, aged twenty-seven, a hautbois player in a military band, married, temperate, and always healthy up to four months ago, was admitted into Charing-cross Hospital with symptoms of heart disease, which had insidiously come on at the date mentioned, without any apparent cause, and gradually increased from that time. He was under my colleague Dr. Silver's care as an out-patient, and first came under my observation from Dr. Silver kindly requesting me to see him, that I might witness a very peculiar derangement of the heart's rhythm that the case presented. On stripping the man and inspecting him this perturbation of the rhythm was at once conspicuous; two cardiac impulses were seen to succeed each other rapidly, and then a pause succeeded, followed by another pair of impulses, and so on. These impulses, thus running in couples, were very conspicuous, not only in the præcordial region, but also at the root of the neck, where the pulsations of the large vessels accurately registered them. The first impulse of each pair was the stronger of the two; and my first impression was that the two represented a single action of the heart—that the first was a systolic impulse, and the second a diastolic. On applying the stethoscope, however, this impression was at once dissipated; for it was found that each of the two impulses was accompanied by an identical murmur, and that this murmur was itself a double one—double aortic. It was clear, therefore, that the second as well as the first of each pair of impulses was caused by the ventricular systole, and represented an independent heart's beat. The pulsation at the wrist, due to the second beat, was decidedly weaker than that due to the first. The interval between the pairs, though greater than that between the pulsations of each pair, was not twice as great; so that it was evidently not an intermission of every third beat. The man consented to come into the hospital, so that I had ample opportunity, as some of you had, of observing this remarkable rhythm. After existing for a few days it ceased, and never reappeared, being substituted by an occasional intermission.

A third case, the counterpart of this last, came under my observation in my private practice two years ago, in a young lady then thirteen years of age. The case is an interesting and remarkable one in many ways; but I will only read you from my private Case-book those parts of its history that refer to the heart's rhythm.

"...... The next thing that struck me was the violence of the heart's action. The next, its peculiar rhythm; the visible impulse appeared to be duplicate, one impulse immediately succeeded by another—two close together, and then an interval—two close together and then an interval; and so on. This was not only visible at the seat of the heart's impulse, but at the great vessels at the root of the neck, where, however, the second pulsation was seen to be decidedly weaker than the first. On feeling the pulse it was at once found that the pulsations at the wrist, though quite regular, were much fewer than the visible ones at the heart, and on checking them carefully they were found to coincide with the first of each pair of pulsations, and to be 56 in a minute, the second of each pair not being recorded at the wrist at all. The question then arose, what was the nature of the two impulses, and what was their relation to one another? In point of rhythm they resembled an ordinary systole and diastole of a slow-beating heart, and the single pulsation at the wrist, accompanying the first of each pair, confirmed that interpretation. But the murmur was so exactly the same at each of these pulsations that I could not but believe that they were identical in their nature.

"May 2nd.—On first listening to the heart this morning I found the same peculiar rhythm which I have already described, the murmurs as well as the impulses and the arterial pulsations going in couples. The rhythm is in triple time, two impulses succeeding each other at 1 and 2, and then at 3 there being a pause. It had all the character of ordinary systolic and diastolic rhythm; nevertheless it was quite certain, from the apex impulse and pulsation of the carotids, that each was a systole. There were about 106 a minute, but the radial pulse was 53, the *second* beat of each couple being the strongest (not the first, as formerly) and the only one reaching the wrist, though the first and feebler one was plainly visible in the carotids. While I was listening, the heart suddenly, without any transition, changed its rhythm, and fell back to an even beat of 90, and so continued. She was not herself conscious of any change in the rhythm of the heart, or aware that it had been beating unusually before.

"Jan. 13th, 1871.—I have not seen this patient since the last notes were taken, eight months ago. She is grown, and is now a tall girl fifteen years of age. A few weeks ago she noticed at night her heart beating in what she calls a 'tune,' a regular cadence, with perfect regularity, two beats and a stop, two beats and a stop, or else three and a stop, she does not remember which. As she lies in bed at night she can hear every beat of her heart quite loud, from the murmur; this peculiarity of rhythm therefore struck her, as she had never heard it before. After lasting a few nights it ceased, and she has noticed no more of it since. On examining the heart this morning, the rhythm I found was as follows: the beats were in couples, a strong beat followed by a weaker beat. The different strength was principally marked by the different length and loudness of the murmur, that of the first being loud and sustained—a prolonged roar—and that of the second weaker and shorter. The interval between the pairs—the excess of the interval which separated them over that which joined them—was nothing like enough for an intermission. The first beat was well marked at the wrist, but of the second there was hardly a trace; in fact, to the finger, unassisted by the ear, the pulsations would have appeared to be half the number they were. While I was listening to the heart it suddenly settled down into an even beat, of the same rapidity as before, but with the beats perfectly equidistant and alike—each murmur a steady grind, just like its fellow. On making the patient walk up and down my room for a turn or two, the couple-beating was for a time reinstated, but not for long. Pulse 92, respiration 19."

Let me point out to you the essential distinctness of such a rhythm as this from anything like intermission. You may of course have an intermission occurring regularly at every third beat, and then you necessarily have the pulsations going in couples—two beats and an interval, two beats and an interval,—the interval representing the lost third beat. This is a form of intermittent pulse that I have by no means rarely met with. But it has nothing in common with the rhythm now under consideration; it is, in fact, merely a form of intermittent pulse, peculiar from its regularity, and happening to occur every third beat. Here, however, we have something very different, and the two points of distinction are these:—In the first place, in the intermittent pulse the continuity of the rhythm is unbroken; after the lost beat the next pulsation falls exactly into the place at which it would have fallen had there been no intermission. If you go on counting regularly, disregarding the intermissions, you find the swing of the time is not thrown out. Whereas, in the couple-rhythm, the next pulsation after the pause occurs earlier than it would if it had been a true intermission; if you attempt to go on counting regularly you are at once thrown out. In the second place, the beats are not of equal force as they are in simple intermission, but one of them is manifestly stronger than the other—you have a strong beat, a weak beat, and an interval, and then again a strong beat, a weak beat, and an interval. It is these peculiarities that give to the rhythm its individuality—that show that each cycle is an individual, a unit apart by itself, and that its elements are portions of this unit. An ordinary rhythm, no matter what it is—intermittent, or irregular, or what not,—is a succession of pulsations; such a rhythm as this is a succession of cycles of pulsations.

Gentlemen, I must finish this lecture as I began, by a *quasi* apology for occupying the precious clinical hour by detaining your attention on what are at best but the eccentricities and curiosities of disease. And yet, one of these days, such phenomena may throw we cannot tell how much light on the physiology and pathology of the heart. I must hope at some future time to give you from our clinical stores something larger and more general on the entire subject of the heart's rhythm. In the meantime you will not be the worse for having your powers of observation sharpened by attention to such minutiæ.

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Lettsomian Lectures

ON

EXCISIONAL SURGERY OF THE JOINTS FOR DISEASE.

Delivered before the Medical Society of London.

By Frederick James Gant, F.R.C.S.,

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LECTURE II.—Part II.

HIP-JOINT (concluded).—ANKLE-JOINT.—TARSAL BONES.

I may now give a summary of my own series of hip-joint cases, as affording typical *illustrations* of the conditions of disease which are appropriate for excision, and the results, proximate and permanent, in each case; an analysis being appended with reference to the several questions of importance pertaining to excision of the hip-joint for disease.

I have drawn up these cases from clinical notes carefully taken—in the first two, by Mr. John B. Foster; in the second two, by Mr. Marriott, formerly house-surgeons; and in two of the remaining four, by Mr. T. C. Murphy, senior house-surgeon at the Royal Free Hospital.

Typical Cases of Hip-joint Excision.

Case 1.—William M——, aged twenty-six. Admitted into the Royal Free Hospital on March 28th, 1864. Scrofulous caries of the left femur; the head and the articular cartilage entirely destroyed; the neck, great trochanter, and one inch of shaft involved, with one inch more of cancellated structure; similar disease of acetabulum, and horizontal ramus of pubes, dislocation on dorsum ilii with abscess; constitutional condition, advanced hectic; disease of traumatic origin; duration of disease, four years; treatment, three years. Excision of four inches of femur, and one inch of cancellated structure. Recovery, with a freely movable joint and a useful limb, in three months. Permanent result known after two years and a half.

Case 2.—John R——, aged sixteen. Admitted into the hospital on July 22d, 1863. Caries of the left femur; its neck, great trochanter, and head involved, with circumferential destruction of the articular cartilage, and disease in the shaft to two inches in extent, with one inch more of cancellated structure; similar disease of acetabulum; dislocation on dorsum ilii with abscess; constitutional condition, advanced hectic; immediate cause, cold; duration of disease, one year. Excision of four inches and a half of femur, and the one inch of cancellated structure. Recovery, with a freely movable joint and a useful limb, in two months and a half. Result known to be permanent after five years.

Case 3.—George C——, aged fifteen. Admitted into the hospital on June 9th, 1864. Caries of right femur; its head and neck entirely destroyed; great trochanter and a small piece of the shaft involved; similar disease of acetabulum; dislocation and abscess on dorsum ilii; health good; disease of traumatic origin; duration of disease, two years. Excision of one inch and three-quarters of femur. Recovery, with a freely movable joint and a useful limb, in three months.

Case 4.—Edward M——, aged eight. Admitted into the hospital on June 10th, 1864. Caries of left femur; its head and neck destroyed; similar disease of acetabulum; advanced hectic; immediate cause, cold; duration of disease, five years. Excision of two inches of femur. Recovery, with a movable joint and useful limb, in two months.

Case 5.—Jane L——, aged five. Admitted into the hospital on March 4th, 1867. *Caries* of right femur; its head and neck destroyed; similar disease of acetabulum; health good; of traumatic origin; three years' duration; two and a half years' treatment. Excision below great trochanter. Recovery, with a movable joint and useful limb, in four months. Result known to be permanent after three years.

Case 6.—Catherine R——, aged five. Admitted into the hospital on Oct. 31st, 1866. Scrofulous caries of left femur; its head and neck destroyed; similar disease of acetabulum; *dislocation* and *abscess* on dorsum ilii; advanced hectic; disease apparently of traumatic origin; one year and eight months' duration and treatment. Excision below great trochanter. Recovery, with a movable joint and useful limb, in three months.

For the particulars of this case I am indebted to my colleague, Mr. John D. Hill, then senior house-surgeon in the hospital.

In *two* other cases the essential particulars were similar to one or other of the above series.

Analysis of the Cases.

The following facts respecting the foregoing cases of hip-joint disease and excision seem specially worthy of notice.

1. *Conditions of disease.*—Caries in all cases, with destruction of the femoral articular cartilage; entirely in 1, 3, 4, 5, and 6, or in five cases; circumferentially only in Case 2. Extent of bone diseased was the head and neck in each case; with the great trochanter and portion of the shaft in Cases 1, 2, and 3; and an extra portion of cancellated structure of the shaft in Cases 1 and 2; caries of the acetabulum to some extent in all the cases, and of ramus of pubes in Case 1; dislocation on dorsum ilii in Cases 1, 2, 3, and 6, or in four out of the six cases.

2. *Immediate cause.*—Injury in Cases 1, 3, 5, and 6; cold in Cases 2 and 4.

3. *Constitutional condition.*—Advanced hectic in Cases 1, 2, 4, and 6, or in four of the six cases; health good in Cases 3 and 5.

4. *Previous duration of disease.*—Four years, one year, two years, five years, three years, one year and eight months. *Previous duration of treatment.*—Case 1, three years; Case 5, two years and a half; Case 6, one year and eight months.

5. *Age and sex.*—Age: 26, 16, 5, 8, 5, and 5 years. Sex: Four males and two females.

6. *Operation.—Incision* T-shaped in all the cases. *Portions of bone* excised: (1) Four inches of femur and one inch of cancellated structure scooped out; (2) four inches and a half of femur, and one inch of cancellated structure scooped out. In both these cases the medullary canal was entered. (3) One inch and three-quarters of femur; (4) two inches of femur; (5) section just below great trochanter; (6) section just below great trochanter. Small portions of the acetabulum were scooped out in each case. *Hæmorrhage* inconsiderable in all the cases. No ligatures required. Silk sutures and water-dressing applied in all the cases. *No splint* was used in any of the cases, the section of the femur being left free to form a fibrous anchylosis.

7. Primary union ensued in all the cases except the first, wherein the wound healed by granulation.

8. *Results.*—Firm fibrous anchylosis, with a movable joint and useful limb in all the cases. Period of union, average three months.

9. Result known to be permanent in Case 1, after two years and a half; in Case 2, after five years; in Case 5, after three years.

ANKLE-JOINT.

The operation of excision with regard to the ankle-joint has been confusedly described in surgical works as signifying the removal of any portion of the foot, whether pertaining to the ankle-joint or not; in the operations originated by Liston, Wakley, and Teale. But, by excision of the ankle-joint, I mean the removal of the articular surfaces of the bones which enter into the formation of this joint—namely, the lower articular ends of the tibia and fibula and the upper portion of the astragalus.

This operation, first performed for *injury* by Hippocrates, and revived by Hey, of Leeds, in 1766, was first performed for *disease* by Moreau, senior, in 1792; then by Moreau, junior, in 1796; next by Mulder, in 1810; and probably by Champion, in 1813. But the credit of introducing the operation into British surgery is due to Mr. Hancock, who excised the ankle-joint for disease in February, 1851. The operation has since been resorted to by Professor Humphry, of Cambridge, in four cases, and by other surgeons, including myself.

Conditions appropriate for excision.—Disease of the ankle-joint, according to Mr. Hancock, frequently commences in the synovial membrane, and extends to the articular surfaces, thus, secondarily, involving the bones. But it may also commence, as scrofulous disease, in the cancellous tissue of the long bones—tibia and fibula, or of the astragalus, or of all three bones. In the former condition the affected portion of the articular surfaces may be removed with safety and advantage. In the latter condition, excision is not inappropriate.

Other and different opinions are held by some surgeons of repute, as by Mr. Furneaux Jordan, of Birmingham, both with regard to the origin of disease of the ankle-joint and the propriety of excision. That disease rarely extends from the synovial membrane, but begins in the cancellous tissue, either of the extremities of the tibia and fibula, or in that of the astragalus; and, it is said, necessarily affects the whole of that bone. In the one condition, excision of the extremities of the long bones, as the local source of the disease, is said to be inadmissible; while, in the other condition, the whole bone—astragalus—must be excised. The former contra-injunction is plainly at variance with the established practice of excision in disease of the knee-joint, under strictly analogous circumstances —when the end of the femur, or head of the tibia, is the seat of disease. Excision of the extremity of either of these long bones is not inadmissible, but only, perhaps, less favorable in scrofulous disease of the cancellous tissue.

The fair inferences from this diversity of opinion respecting the diseased conditions of the ankle-joint for which excision is appropriate, would appear to be:—

(1) When disease commencing in the synovial membrane has extended to and destroyed the articular surfaces of the tibia and fibula, that of the astragalus, or of both opposed surfaces.

(2) When disease, having the same articular consequences, commenced in the cancellated tissue either of the long bones or of the astragalus, provided it be limited to part of this bone—its upper articular portion.

(3) Whether the disease originated in the synovial membrane or in the articular cancellated tissue, resulting in destruction of the cartilages without anchylosis, excision should be resorted to *before* the supervention of constitutional exhaustion.

Operation.—Hancock's description of excision of the ankle-joint as first performed by him in England (1851) is as follows:—"I commenced an incision behind and about two inches above the external malleolus, carrying it forwards beneath that process across the front of the joint, and terminating about two inches above and behind the inner malleolus. This incision included the skin, without implicating the tendons or their sheaths. The flap thus formed was dissected up, and the peronei tendons were detached from the groove behind the fibula and cut through, as was the external lateral ligament close to the fibula, with a pair of bone-nippers. I next divided the fibula about an inch and a half above its inferior extremity, and, cutting through the inferior tibio-fibular ligaments, detached the external malleolus. Turning the leg on to its outer side, I cut through the internal lateral ligament, carefully keeping the knife close to the end of the tibia to avoid the posterior tibial artery. The tendons of the tibialis posticus and flexor communis were then detached from the groove behind the internal malleolus, and, taking the foot in both hands, Mr. Avery holding the leg, I dislocated the foot outwards, thus bringing the end of the tibia with the internal malleolus prominently through the wound. These were removed with a common amputating saw, applied half an inch above the horizontal articulating surface of the tibia, the soft parts being protected by a spatula; the upper articulating surface of the astragalus was also removed by a metacarpal saw, held horizontally. The foot was then restored to its proper position, the cut surface of the astragalus being adapted to the cut surface of the tibia; and the wound having been closed by sutures, except on the outer side, left open for the free escape of discharge, the leg was placed on an external splint, having an opening corresponding to the wound."

The parts divided by this operation were—the skin, peronei tendons, internal and external, lateral and inferior tibio-fibular ligaments, and the articular surfaces of the bones. In subsequent operations the tendons were preserved entire. In no instance have the tibial arteries, anterior or posterior, been wounded; and never has it been necessary to apply a single ligature.

Lateral incisions alone, without the anterior communication, have since sufficed. This was my mode of operation in two cases.

The *after-treatment* of ankle-joint excision should be conducted in accordance with the principles laid down respecting the excision of other joints, regard being had to the kind of anchylosis necessary for the use of the limb. The fixed position of the foot must be maintained during the period requisite to secure a firm anchylosis of the osseous surfaces made by excision—the lower ends of the tibia and fibula, and the upper surface of the astragalus; thus to adapt the foot for support and progression. The wounds, one on either side of the ankle, are dressed from day to day, but the splint should be removed and reapplied *very seldom*. In my own excisions of the ankle-joint I have fixed the leg on a flat back-splint, provided with a foot-piece; thus secured, displacement can scarcely occur, and the side wounds are freely accessible for cleansing and dressing. Eventually a starched bandage may be applied; and the foot being slung from the neck, the patient gets about on crutches as the foot is gradually brought into use.

Results.—Excision of the ankle-joint for disease presents some most interesting results, both in relation to the mortality of this operation and the state of the foot, with the probability of secondary amputation; both these aspects of the operation being considered also as compared with amputation of the leg, and with Syme's and Pirogoff's operations of amputation at the ankle-joint, severally, for disease.

For certain valuable statistics bearing on these important questions I am indebted to Mr. Hancock, who liberally placed at my disposal the manuscript of his lectures at the Royal College of Surgeons.

I. *In relation to Mortality.*—The results of 32 cases of excision of the ankle-joint for *disease* have been collected by Mr. Hancock; all that he could find recorded in the practice of British surgeons. Of these 32 cases, 7 died—about 1 in 5, or a fraction above 11 per cent. But of the 7 deaths, 4 are reported to have died of consumption, one suffering from that disease at the time of operation; while another died of secondary syphilis. This reduces the average mortality to 1 in 16, or about 6 per cent. Of my own two cases, both lived.

Author's Collection.

(1) Charing-cross Hospital; period 1858–65. (Per Mr. Hancock.) Number of cases, 6; recoveries, 6. Amputation of re-excision in 1 case, with recovery.

(2) Royal Free Hospital; period last five years. Number of Cases, 4; recoveries, 4. Syme's amputation in 1 case, with recovery.

(3) Chalmers' Hospital, Edinburgh; period last six years. (Per Mr. P. H. Watson.) Number of cases, 4; recoveries, 4.

(4) St. Bartholomew's Hospital; period 1866–70. (Per Mr. Callender.) One case; recovery.

(5) St. Thomas's Hospital; period 1866–70. (Per Mr. F. Churchill.) One case; fatal.

(6) London Hospital; period last five years. (Per Mr. J. McCarthy.) One case; recovery. Amputation or re-excision afterwards; recovery.

Guy's, King's College, Westminster, St. Mary's, and Great Northern Hospitals; Liverpool Royal Infirmary; and Royal Albert Hospital, Devonport; period, each, last five years. No cases.

Compared with the mortality of amputation.—(*a*) Amputation of the *leg* for disease, in civil surgery, has a mortality of 26 per cent.; whereas in the results of ankle-joint excision for disease the mortality, already quoted, has been only 6 per cent.: 20 per cent. difference in favor of excision. (*b*) Amputation at *ankle-joint*:—Syme's amputation: Of the whole number of ankle-joint amputations—219, as collected by Mr. Hancock,—in 144 amputation was performed for disease (caries); of these 10 only were fatal, or somewhat less than 1 in 14; and, as 3 died of phthisis, 1 of diarrhœa, and 1 a year after operation, 5 deaths only remain, or a reduced mortality of 1 in 28. Pirogoff's amputation: 58 cases of this amputation represent the whole number performed by British surgeons of which Mr. Hancock has been able to gather the particulars. Nearly 100 cases reported by Pirogoff as having been performed in Russia are not available for statistical comparison. Of the 58 cases, 5 were fatal, or about 9 9-10 per cent. Of the remaining 53 recoveries, in 29 the operation had been resorted to for caries.

II. *State of the Foot.*—Of the 32 cases operated on by excision of the ankle-joint, 21 recovered with good useful limbs.

Secondary amputation after ankle-joint excision.—of the 32 cases, 2 only underwent secondary ampution, and both recovered.

Compared with secondary amputation after amputations of foot.—(*a*) After Syme's operation: Of the 144 cases submitted for caries, 9 underwent secondary amputation; but, of these, 1 was a confirmed drunkard, 1 had been primarily operated on for traumatic gangrene, 1 two years previously for an accident, and in the remaining 2 the disease is not stated. (*b*) After Pirogoff's operation: Of the whole 58 (for disease and injury), 5 only suffered secondary amputation, but in 4 of these the primary operation had been performed for caries.

Comparing, therefore, these two amputations of the foot, Mr. Hancock observes: "As regards the occurrence of suppuration, the percentage of deaths, of recoveries and periods of recovery, and secondary amputations, the evidence of British surgery is in favor of Syme's operation, whilst as regards sloughing of the flap it is decidedly in favor of Pirogoff's proceeding. Syme's amputation appears to be unquestionably the best for disease, and Pirogoff's for the accidents of civil life, since by it we preserve an increased length of limb."

TARSAL BONES.

Excision of the Tarsal Bones comprises certain recognised operative procedures which correspond to the lines of the osseous articulations; as removal of the astragalus, or of the os calcis. But the plan and performance of excisional operations on the foot should not be restricted by these anatomical limitations. The modification of these operations on the foot, according to the kind and extent of the disease, well illustrates the guiding principle of excisional surgery; and this application of the general principle I have laid down is specially advocated by Mr. Hancock, in the lectures already referred to.

The *conditions of disease* for which excisional operations on the foot may become appropriate are similar to those which affect other bones and their articulations; namely, the destructive result of inflammation, and especially in the form of caries. According to the extent of such disease, partial or complete excision of any one or more tarsal bones may be necessary. I proceed to describe the various operations, and to estimate their value by their results.

1. *Excision of astragalus.*—*Partial* excision of the astragalus, for disease, was first attempted by Severin in 1646, and in England by Ramsay in 1792. Since that time it has been performed by other surgeons, but in a comparatively few authentic cases. *Complete* excision, for disease, was first performed by Mr. Busk in 1850. Three other cases only have since been recorded in England; one each by Mr. Erichsen, Mr. Holmes, and the late Mr. Statham. An incision along the outer and anterior aspect of the ankle will expose the bone; its neck should then be severed with strong cutting pliers; and, some space having been thus made, the bone may be drawn out of its bed by the lion forceps, the knife being used to detach its ligamentous connexions, but applied cautiously towards the inner side of the joint in proximity to the planter arteries. It may be necessary to extirpate the bone piecemeal when its substance breaks down in a carious state; it must then be gouged out.

Some of the *anterior* tarsal bones may have to be removed *with* the astragalus. Liston's operation on the foot—as the excision thus extended, in a noted case, might be named—consisted in the removal of the astragalus, scaphoid, and two cuneiform bones. The case is reported in the *Edinburgh Medical and Surgical Journal* of January, 1821.

Results.—Of *partial* excision of the astragalus, in 27 cases recorded, 8 were operations for disease (caries); 5 terminated well; 1 ended in anchylosis, and in 2 the result was not stated. *Complete* excision: In 109 cases of complete excision of the astragalus, 14 were operations for *disease*, 13 being for caries, and 1 for necrosis. Of the 13 cases 1 died, 8 recovered with good and useful limbs, 2 underwent secondary amputation two years after excision, and both recovered; in 2 the results were doubtful. The case of excision for necrosis did well.

(2) *Excision of os calcis.*—*Partial* excision seems to have been first performed for injury, in the removal of a musket-ball from the os calcis, by Formius, as long since as the year 1669.

Complete excision was first performed, and for disease (necrosis), by M. Robert of Prague, in 1837. The second operation, and the first in this country, was by Mr. Hancock, in May, 1848. The first successful case in England was by Mr. Greenhow, of Newcastle, in the same year, 1848; and two equally successful cases of complete excision, in the hands of that surgeon, followed also in that year. Since then the operation has been practised, with varying success, by other surgeons, principally by Sir William Fergusson, Teale (Leeds), Humphry (Cambridge), Cann (Hereford), Pemberton (Birmingham), Potter (Newcastle), Mr. Holmes, Mr. Erichsen, and by myself.

The operation is thus performed:—The patient lying on his face, with the sole of the foot uppermost, an incision with a stout bistoury may be commenced at the calcaneo-cuboid articulation, just above the sole of the foot, and carried backwards round the heel forwards to an equal point on the inner side. This *sole-flap* of integument is raised forwards from the under surface of the os calcis, and in its whole thickness down to the bone, so as to form a good cushion; a slight perpendicular incision is made opposite the tendo Achillis into this horizontal incision, and with a little reflection of the integument to either side the tendon is severed from its insertion. The knife is then entered posteriorly over the upper surface of the os calcis, and the strong interosseous ligament connecting it with the astragalus is divided, somewhat as an oyster is opened. The bone can then be raised, and its lateral attachments being cleared by a gentle application of the knife, the calcaneo-cuboid articulation is opened, and the bone completely detached.

Or, an incision may be made, as for Syme's amputation at the ankle-joint, and a *heel-flap* having been formed, the os calcis is exposed, lateral incisions are continued, on either side, along the sole of the foot to the line of the calcaneo-cuboid articulation, whereby a short *sole*-flap is reflected forwards, and the operation completed as before. The objection to this plan of excision is the liability to sloughing of the heel-flap in disease of the os calcis; fistulous openings frequently having formed posteriorly, where the flap is attached. The advantage of a heel-flap is that the excision can be readily converted into Syme's amputation in the event of the astragalus being found to be extensively involved. This method, therefore, was recommended by Mr. Teale, and practised by Mr. Page, as a precautionary proceeding in excision of the os calcis.

Apart from the contingency of sloughing, I prefer the sole-flap method of excision.

3. *Excision of the os calcis and astragalus.*—Wakley's operation is performed much in the same manner as the second method of excision of the os calcis alone. The only differences are, an *additional* incision between the malleoli posteriorly, curving down to the insertion of the tendo Achillis, so as to expose the astragalus on raising this flap of integument, and that the integument of the heel between this incision and the incision across the heel, from malleolus to malleolus, forming the heel-flap in the other operation, is here removed. The bones are excised through the gap thus made posteriorly, by dividing the tendon and lateral ligaments, lateral incisions being continued along the foot to the line of the calcaneo-cuboid and astragalo-scaphoid articulations, so as to give access to these articulations. The malleoli are removed with bone-nippers. The posterior tibial artery must be ligatured, but the anterior tibial is avoided by very cautiously using the knife in removing the astragalus in front of the tibia.

This excision would probably meet the difficulty of disease extending *up* to the ankle-joint, and in such case prove a substitute for Syme's amputation at the ankle-joint. The operation was performed by Mr. Wakley at the Royal Free Hospital, in December, 1847, and the case is reported in THE LANCET, 1848.

Results.—Of *partial* excision of os calcis, in 42 cases collected by Mr. Hancock, 38 were operations for *disease*—25 caries, 12 necrosis with sequestra, and 1 necrosis. Of the 25, 1 died the day after operation of diarrhœa, 14 recovered at periods varying from six weeks to six months, 2 required a second operation, but recovered, and 1 underwent secondary amputation, while of the remaining 7 the result is not stated. Of the 12 cases, 3 recovered, 1 required a second operation, 1 secondary amputation, and of 7 the result is not stated.

Complete excision:—Of 18 cases (the particulars of which are authenticated), in 14 the disease was scrofulous; and in 11 of these this condition was entirely constitutional, in 1 it is said to have originated from a nail having been run into the heel, and in 2 to have followed sprains. Of the 11 cases, 1 died of diphtheria, 7 recovered, and with perfect use of the limb, while 3 suffered secondary amputation, 2 from recurrence of disease in the remaining tarsal bones, and 1 owing to erysipelas. Of the 3 cases induced by injury, 2 recovered completely, and the result of the third was doubtful.

The *general* results of complete excision of the os calcis are thus represented in 34 authenticated cases: 1 died of diphtheria, 25 recovered completely, 4 underwent secondary amputation, and of 4 the results are not given.

In one case of excision of the os calcis for caries, I removed also the cuboid bone and a small portion of the external cuneiform bone, both of which were involved in the disease. The patient recovered, and with a thoroughly sound and permanently serviceable foot; this result having been established by two years' duration, when the weight of the body could still be supported by the foot, and the ankle-joint had free motion. He walked without the aid of a crutch or stick. The particulars of this most successful case are reported in THE LANCET, 1864.

Compared with sub-astragaloid amputation. This operation has been little practised in England, but chiefly in France. It appears to have been performed altogether in 22 cases, as collected by Mr. Hancock. The results of some are not stated. Of the whole number, 6 were operated on by Malgaigne, 1 by Maisonneuve, and 1 by Nélaton; in 9 collected by Vacquer all terminated favorably; 1 by Dr. John Traile, of Arbroath, was successful; in 2 by Mr. Simon 1 was successful, the other patient having died of tetanus at the end of a fortnight; in 1 by Garner, of Stoke-upon-Trent, the report was unfavorable; and 1 by Mr. Hancock was successful.

The *cuboid*, *scaphoid*, and three *cuneiform bones* may severally require excision, and preferably to removal by Chopart's amputation in the articular line between the os calcis and astragalus behind and the cuboid and scaphoid in front, whereby the two latter tarsal bones, the three cuneiform bones, with the whole of the metatarsus and toes, are sacrificed. But the conditions of disease appropriate for excision rather than amputation are not determinable by any precise rules; and either operation must be selected according to the judgment of the surgeon in each particular case.

For the operations of excision no particular directions can be laid down; the lines of incision must be guided by the state of the integument and the facility for gaining access to the bone and its articulations.

The *metatarsal bones* may also be subjected to excision, either at their articular ends or of the whole bones. These operations of extirpation are more desirable than the sweeping amputation of the metatarsal portion of the foot, including the toes, by Hey's operation, in the line of the tarso-metatarsal articulations. The choice of operation must here again be determined in each particular case by the kind and extent of disease.

The *toes* are not eligible for excision, except at their articulations occasionally, or of the ungual phalangeal bones. Removal of the intermediate phalanges will scarcely leave a useful toe. With regard to the *great toe*, its metatarso-phalangeal articulation may occasionally be excised, or the last phalangeal bone removed, thus preserving the ball of the toe for the support of the arch of the foot.

But the *results* of these excisions of the metatarsal bones and phalanges of the toes, or of their articulations, are less successful than in the corresponding bones of the hand, the toes or their contracted portions remaining comparatively useless or inconvenient.

I have now laid before you the very important experience of other surgeons, no less than my own, relative to excisional surgery of the ankle-joint for disease, concluding that of the lower extremity; and if I have succeeded in attracting a more general appreciation of, and confidence in, these most valuable operations, the object of these lectures thus far will have been accomplished.

Original Papers.

ON THE TREATMENT OF HYPERPYREXIA,

AS ILLUSTRATED IN ACUTE RHEUMATISM,

BY THE EXTERNAL APPLICATION OF COLD.*

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Cases of acute rheumatism in which, after a course of variable severity, the temperature suddenly rises from 103° or 104° to 107°, 108°, or 109°, have usually proved fatal within a very short time after the latter temperature (109°) has been attained. In the majority, indeed, of published instances this has been the case within one or two hours; and Wunderlich regards this terminal rise as "proagonic," or as one of the phenomena of death—a view still further borne out by the fact that a further elevation is often continued for one or two hours after life has apparently ceased.

I published in The Lancet, last year, an instance of a case where, by means of repeated immersions in the cold bath, life was protracted for nearly thirty-six hours after the patient's temperature, while suffering from acute rheumatism, had reached 109°, death finally taking place by exhaustion at a temperature of 104·4°. This case had been complicated by a large bleeding, practised before the bath was employed, in the hope of thereby producing a reduction of temperature, when this had reached 109°, and when the patient was violently delirious. In my commentary on that case I showed that venesection to more than twenty ounces had no effect whatever in checking this rise; and I also expressed a hope that cases of this nature, treated in future by the cold bath and without venesection, might yet show a favorable termination.

This hope, I am glad to say, has been realised in two cases which have been under my care in the course of the present summer; where the patients, a man and a woman, have completely recovered under this treatment, after rapidly attaining a temperature, in the one case, of 110°, and, in the other, of 107·3°. Both were first attacks of the disease; and, indeed, this ordinarily fatal mode of termination appears to be more common under these circumstances.

I shall narrate them in the order in which they occurred, though they were both in the hospital at the same time; and the rise of temperature in each occurred within two days of one another, the higher temperature attained by the woman being due to the fact that we were not so fully prepared for the emergency as in the subsequent case.

The female patient, Mrs. Brophy B——, aged forty-nine, married, no children, was admitted into University College Hospital on the 5th of June, 1871. Had lived badly until twelve months ago. Since then she had been in better circumstances. No direct hereditary tendencies; but one aunt had died from rheumatic fever. No previous diseases, except "inflammation of the liver" fifteen years ago; but she was liable to hysteria and palpitation. Menstruation had ceased for twelve months past.* Her present illness—her first attack of rheumatic fever—began on the night of the 27th of May, with pain in the right hand. She had had slight pains in the feet for some days previously, but had not laid up. On the 29th (two days later) she had a rigor, which recurred on several successive days. After this the knees and ankles were affected. She knows of no cause for the illness. Did not perspire before admission, had no cough, and was free from pain in the chest or palpitation.

On admission on the seventh day after the first rigors, or the ninth day of the disease, the patient looked depressed; had an earthy tint of skin; the tongue was furred and tremulous; the joints of all her extremities were painful, but especially the knees, ankles, hands, and feet. Grazing friction was heard over the heart; the apex was in the fourth interspace, a quarter of an inch outside the nipple, but the area of dulness was not increased. The cardiac region was tender. The first sound was muffled at the apex; but there was no distinct murmur. The patient perspired freely. She was placed on the treatment by the perchloride of iron, introduced by my friend and colleague, Dr. Reynolds, half a drachm of the tincture being given every four hours, and the joints were wrapped in cotton-wool.

On the 9th of June (the thirteenth day of the disease), the patient's state was much the same. She perspired profusely; the tongue was still furred. Friction was abundant over the heart; dulness only to the third cartilage. The joints of the upper extremities were more painful, those of the lower extremities less so.

On the morning of the 10th (fourteenth day of illness), there was little change, and the patient still presented the appearance of an ordinary case of acute rheumatism, with a rather marked degree of weakness. Up to this date the pyrexia, as measured by the temperature, had been of an extremely moderate type. On the 5th, the day of admission, it had reached, in the evening 102·9°; but though taken regularly on the mornings and evenings, it had only once subsequently (on the evening of June 9th) been even as high as 101·2°, and on two occasions the morning temperature was 99·2° and 99·6°. On the morning of the 10th it was measured, but by some accident not recorded, though found higher than before; I am, however, assured by my excellent clinical clerk, Mr. Benham, who took it, and by my most reliable assistant, Mr. Bindley, who was present at the time, that it did not exceed 102° (axilla). The patient's aspect was then that of increased prostration, and she was perspiring freely, but no other change was noticed in her general state. At 3 P.M. on the same day (fourteenth day, five days after admission, and twelve days since the rigor), the temperature was found to have risen to 105°, and at 5.30 P.M. it was 105·6° (axilla). I was sent for, and reached the hospital at 6 P.M. The temperature in the axilla was then 106·4°. It had risen 4·4° since 9 A.M., or within nine hours. At this time the patient was entirely free from pain in her joints. She was conscious, but spoke with difficulty, and with an extremely slow articulation; otherwise her manner was natural. She complained only of weakness. The face was a dusky purple, the eyes suffused, and the conjunctiva much injected. A thick mucus had collected in the inner canthi. The tongue was tremulous, as were also the hands. She lay with her eyes closed, sighed deeply from time to time, but roused when spoken to. The pulse was 112, respiration 44 in the minute. The heart's apex was immediately under the nipple, in the fourth interspace. The dulness was at the level of the third left cartilage. There was strong friction at the base; a short, highly, pitched murmur at the left apex. Having in one case of rheumatic fever, when the temperature had risen rapidly from 101·8° to 104·4°, seen an immediate and rapid fall of four degrees to 100° within ten hours, and without any subsequent exacerbation, follow the administration of one scruple of quinine, I also gave this patient a scruple of quinine in powder, suspended in mucilage; and this dose was repeated every half-hour until 8.50 P.M., when the patient had taken in all 120 grains of quinine. The last dose was vomited. From 6 P.M. to 7.35 P.M. the temperature oscillated between 106·6° and 106·2°. The pulse varied from 108 to 112; the respiration from 38 to 44 in the minute. At 7.50 P.M. the temperature had risen to 106·9; pulse 120, respiration 40 in the minute.

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* Read at the annual meeting of the British Medical Association.

* This returned after her recovery while at the All Saints' Convalescent Home at Eastbourne.

Being at this time obliged to leave the hospital for a short time, I requested my assistant, Mr. Bindley, in case the temperature reached 107°, to put the patient into a bath at 96°, and to keep her there, proposing to endeavor to effect by this means a gradual reduction of temperature. There was, however, some delay in getting the bath prepared, and in the meantime the temperature rose rapidly, being 107·1° at 8.5 P.M., 108·4° at 9.15 P.M., when she became entirely unconscious, and 109·1° at 9.50 P.M., when the patient was put into a bath of 96°. At this time I returned, and thought the patient in the act of dying. She was absolutely unconscious; the pulse was imperceptible; the face in the highest degree cyanotic; and she was drawing the few last irregular, gasping, stertorous respirations which commonly precede the act of death. At 9.55 P.M. the temperature in the rectum was 110°. I had questioned whether to take her out of the bath before death, but finding the temperature still rising, I determined to make one vigorous effort at its reduction. Ice was fetched; a large lump was placed on her chest, another on her abdomen; a bag filled with ice was tied down the length of her spine; and while two assistants baled the warmer water out of the bath, two others poured ice-water as rapidly as the pails could be filled over the patient. At 10.10 P.M., or within fifteen minutes, the temperature of the rectum had fallen to 109·1°; in five minutes more (10.15 P.M.) to 108·4° (the average temperature of the bath being then 66°); at 10.20 P.M. the temperature in the rectum had fallen to 107·5°, and at 10.25 P.M. to 106·2°. The pulse now became perceptible (140), and the patient showed some signs of consciousness. Brandy was freely given. At 10.35 P.M., or within half an hour of the time that ice was first applied, the temperature in the rectum had fallen to 103·6°, and the patient was taken out of the bath (temperature of bath 63°), and the ice-bag was removed from the spine. At 10.55 P.M. the temperature in the rectum was 100·6°. The patient could speak, and had a certain imperfect consciousness. The lividity of the face and the suffusion of the eyes had disappeared, but spasms of rigidity attacked at times the muscles of the lips and of the neck, but not of the limbs. At 11.5 P.M. the rectum temperature was 99·5°. As there was some difficulty in swallowing, an enema of brandy was now given. The patient took six ounces of brandy from 10.10 P.M. to 11.10 P.M. At 11.25 P.M. the temperature in the vagina (taken here as an enema was retained in the rectum, the patient being nearly unconscious) was 97·4°. The temperature had therefore fallen 6·2° within fifty minutes after her removal from the bath, when her temperature was 103·6°; and the total reduction from the time of the first application of the ice was 12·4° Fahr. within a period of an hour and a half, during which she had really only been exposed to the influence of the cold for half an hour. At 11.40 P.M., or twenty minutes later, the temperature still remaining at 97·4° (vagina), and the patient presenting signs of threatening collapse, with a scarcely perceptible pulse, I thought it desirable to guard against any further fall of temperature. Hot bottles were applied to the feet, and a hot-water bag was placed against the back. Within twenty minutes the temperature now rose to 98·2° (vagina). The pulse became perceptible (130); respiration 42.

By 1.15 A.M. on June 11th, or within an hour and twenty minutes, the temperature had risen to 99·4°; the pulse was 118, respiration 32; she had been partly conscious, and now dozed quietly, though some strabismus was noticed about this time. From 1.15 A.M. to 3.30 A.M. the temperature again slowly rose to 101·8°; consciousness was apparently restored:* the patient took brandy freely, and spoke; the pulse was 112, respiration 40. From 3.30 A.M. to 7.35 A.M. a gradual rise of temperature continued, reaching at 7.35 A.M. 104·5°. At 7.40 A.M. she was again put into a bath (temperature 64°). Five minutes after her immersion the temperature in the vagina was 105°; it then began to fall, and in twenty minutes had fallen in the vagina to 103·9°. She was immediately removed from the bath (temperature of bath at patient's removal 66°); but the fall continued for forty minutes longer, reaching 99·4° at 8.40 A.M., or within an hour of this second application of cold there had been a reduction of temperature of 5·6 Fahr. At 8.30 A.M., while the temperature was 100·8°, there was a strong rigor, which was several times repeated. Hot bottles were again applied, but in spite of these the fall of temperature lasted for ten minutes longer—i.e., until 8.40 A.M.,—and amounted to 1·4° within this short time, reaching 99·4°. Deafness from the quinine taken the afternoon before became very distinct about this time, and lasted for forty-eight hours. During the night the patient had, by mouth or enema, about twenty ounces of brandy. The temperature after this rose gradually to 100°, but did not rise above 102° for thirty-six hours. During this period the pulse and respiration ratio averaged 96 to 30. She perspired freely, was quite conscious, passed a natural motion and urine of 1014 specific gravity, and had some quiet sleep. Brandy was given, according to the strength of the pulse, in doses varying from two drachms to half an ounce every hour.

Some cough now appeared, with purulent expectoration. The lungs were, however, resonant on percussion; but on the following day moist and sibilant râles became general through the lungs. The cardiac friction and apex murmur were entirely unchanged, and there was no increase of the cardiac dulness. The knees now became again slightly painful; the tongue became thickly furred, and she was occasionally sick, but took an abundance of milk, beef-tea, and eggs. Lime-water was given with the milk, and within this period—viz., at 3 P.M. on the 12th, or thirty hours after the last fall of temperature, being the sixteenth day of the disease, the seventh after admission, and the second of this treatment,—the pulse becoming weak and increasing in frequency to 120, quinine was again given in doses of five grains every four hours. At 8.50 P.M. on the 12th, or thirty-six hours after the previous fall of temperature, and forty-eight hours after the first rise, this had again risen to 102·1°. In thirty minutes later it had risen to 102·2°, and in order to check a further rise the ice-bag was applied to the spine. Within thirty-five minutes the temperature had fallen to 101·6°, or three-fifths of a degree; in three hours it had fallen to 101°, when the ice-bag was removed. It fell another half degree in the quarter of an hour succeeding, and it then again slowly rose with minor oscillations within five hours to 102·4°, when the ice-bag was again applied for three hours, producing within this period a reduction of 1·5°. The ice-bag was then removed, and a slow rise of temperature ensued during three hours and a half to 102·5°, when the ice-bag was reapplied. Its effect this time was less marked. The temperature fell in three hours 1·1°, and continued below 102° for three hours longer; but although the ice-bag was continuously applied, it rose to 102·2°, and remained nearly at this height during the succeeding three hours; then it fell three-tenths of a degree, and oscillated between 101° and 101·9° for eight hours longer, when, the temperature being only 101·6°, the ice-bag was removed from the spine, after it had been continuously applied during eighteen hours.

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* Subsequently it was found that the patient remembered nothing of the treatment after the first dose of quinine. Some days later she asked if she had not been very ill.

During this period—i.e., on the third day from the attainment of the temperature of 110°—moist râles had appeared throughout both lungs, but had again given way to dry sibilant râles; abundant muco-purulent expectoration was present. The tongue was still covered with a creamy fur. The pulse had improved greatly in quality, varying in frequency from 100 to 104, while the respirations varied from 26 to 30 in the minute. The deafness disappeared on the beginning of the fourth day, though the patient was still taking quinine in doses of five grains every four hours, or at the rate of half a drachm in the twenty-four hours. The cardiac dulness remained at the level of the third cartilage. The friction continued, and also the apex murmur noticed on the 10th. There was great tenderness over the precordial region.

The patient had taken during each of the past two days eighteen ounces of brandy in the twenty-four hours, and also sixteen ounces of beef-tea, four pints of milk, and seven eggs. On the fourth day of this treatment (the sixteenth day of the disease), there was some dulness at the base of the right lung; fine and coarse moist râles had again become general throughout the left lung, and there was some blowing breathing over the dull area in the right lung. The moist râles on this side were limited to this part. The temperature on this day (June 14th) varied from 101·8° to 102·8°. During an hour and a half, from 8.30 A.M. to 10 A.M., when the temperature was 101·8°, the ice-bag was applied to the spine *without any effect in reducing the temperature.* Indeed, this rose during the application to 102·1°, or three-tenths of a degree, and it was, therefore, discontinued, and the temperature subsequently fell during the ensuing three hours to 101·3°, after which it gradually rose during eleven hours, to 103·2° (June 15th, the nineteenth day of the disease, and the fifth of this treatment). At this time the ice-bag was re-applied for six hours, during which period a reduction took place of 1·8° in the temperature, or from 103·2° to 101·4°, when it was removed.

At this time a great improvement was noted in the patient's strength. She could turn in bed without assistance; the pulse was 96, dichrotous, but of good volume; the dulness at the right base, noted twenty-four hours previously, had disappeared, though abundant moist râles persisted at both bases. The cardiac friction continued, but the murmur at the apex had disappeared, and the precordial tenderness had diminished. The bowels had again been opened naturally. She had in the last twenty-four hours taken eighteen ounces of brandy, twelve ounces of beef-tea, and seven eggs. The brandy was now ordered to be reduced to twelve ounces in the twenty-four hours.

During the next twenty-four hours there was no further application of the cold. The temperature oscillated between 100·5° and 102·7°. The pulse remained about 96, and the respiration 24.

On the 16th (the twentieth day of the disease and the sixth of this treatment) the strength was still further improved. The tongue was still furred; but she had, in addition to twelve ounces of brandy, taken two pints of beef-tea, three pints and a half of milk, and seven eggs in the previous twenty-four hours; and had passed a natural stool. There was no dulness over the lungs, and less moist râle; but still some weak breathing at the right base. The pulse (96) was small, but well sustained, and without dichrotism. The cardiac friction was diminished; the apex murmur was faintly audible. She had passed seventy-two ounces of urine. The quinine was reduced to one grain every three hours, or eight grains in the twenty-four hours.

On June 17th (the twenty-first day of the disease and the seventh of the treatment) the temperature fell to 98·4°. On the following day it never rose above 99·1°; and after this it remained normal, though falling on the 22nd to 97·9°.

On the 18th, though only a week had elapsed since the excessive temperature, the patient sat up in bed, and ate a boiled sole for dinner.

The râles in the back entirely disappeared on the 22nd—the twelfth day after the intense pyrexia, and the twenty-sixth day of the disease. The heart's sounds had now become natural, with the exception of a very faint friction at the base, which disappeared within the following two days. The apex had returned to its natural position, the dulness was at the lower border of the third interspace, and there was no murmur. From this time, though the patient remained feeble for a few days longer, there was uninterrupted improvement, with the exception that on the 1st of July (the thirty-fourth day) the morning temperature was 100°. This had, however, fallen to 98·5° in the evening; and there was no subsequent relapse. The patient got up, walked about the ward, and was discharged for Eastbourne on the 10th of July—thirty days after the intense pyrexia, and forty-four days after she was first taken ill.

The next case presented much greater difficulties in treatment, and a more obstinate persistence of the pyrexia, though the treatment of this latter symptom was commenced at an earlier period than in the last related. The patient had, however, more serious complications; a double pneumonia, with pleuritic effusion also double, and a large pericardial effusion, all existing before the dangerous rise of temperature took place; and, probably in consequence of the latter condition, the case was more protracted.

Allen C——, aged thirty-six, admitted into University College Hospital June 6th, 1871. Is a coachman; single; has lived well; not in the habit of drinking. Has had gonorrhœa, but never a chancre. No other previous illness. No hereditary predisposition. The present (his first) attack of rheumatic fever began apparently on May 26th, in consequence of exposure. He had then pains in the back and joints, perspired freely, and had rigors on several successive days; but was able to attend at St. Mary's Hospital as an out-patient during the whole week previous to his admission to University College Hospital, on the eleventh day of the disease.

The first notes of his case are on the 7th June, when friction was heard over the heart. On the following day (the thirteenth of the disease) he had pains in the elbows and hands of both sides, in the right shoulder, and in the left knee and ankle. He perspired freely. The tongue was furred. The heart's apex was in the fourth interspace, half an inch outside the nipple; and the cardiac dulness extended to the lower border of the second left cartilage. On this day the patient began to cough. This was attended with a thin mucoid expectoration, streaked with blood; and on examination there was found to be dulness at the right base extending as high as the angle of the scapula, with weak breath-sounds. On the following day (June 9th—fourteenth day of the disease, third day in hospital) the left base was also affected, and bronchial breathing with fine crepitation was heard at both bases. The patient was very prostrate, and perspired profusely. The joints first affected were better, but the right knee was now swollen and painful. The urine throughout this period had been free from albumen, sp. gr. 1021 to 1025, acid, and high-colored.

The temperature from his admission until the 12th June (the seventeenth day of the disease) varied from 102° to 104·4° Fahr.; it only reached the latter point on the evening of the 8th, when the patient began to cough, and when it may be presumed that pneumonia was commencing. There was, however, no variation in the pulse-respiration ratio (90: 27—100: 26) previously observed, until the following morning, when they were respectively 104 and 40. The temperature did not, however, during the two succeeding days maintain the same high standard; on the following morning it was only 102·8°, and it did not again rise above 103·1° until the evening of the 12 June.

On the morning of June 12th (the seventeenth day of the disease and the sixth after his admission to the hospital) there was no material change in his general state. The morning temperature was 102°; pulse 104; respiration 36. At 8 P.M. of this day he became delirious. At 9 P.M. the temperature was 105·6°; at 9.5 it was 105·7°; and at 10 o'clock 105·8°. He was now given half a drachm of quinine in a single dose in powder. No further rise of temperature ensued for two hours and twenty minutes; but in the last hour (from 11.10 P.M. to 12.20 A.M.) it rose nine-tenths of a degree, or from 105·7° to 106·5°; and in another hour it rose another half degree, attaining 107° Fahr.—a rise of five degrees in fifteen hours. During the last four hours the patient had been more or less constantly delirious, though capable of being roused when spoken to, and once answering rationally—giving the address of his relatives; this, however, was done with difficulty. (He gave the address wrongly, and voluntarily corrected himself.) He appeared to have no pain. Though he had on previous days perspired freely, the skin was now dry. The face was flushed, and dusky in tint, though not so cyanotic as in the last case. The eyes were suffused and injected. The alæ nasi acted strongly. The pulse was jerking, irregular in rhythm, but not intermitting, 100 to 108. The respiration varied from 44 to 46. The tongue was dry and brown.

At 2 A.M. on the 13th, when the temperature was 107°, he was put into a bath at a temperature of 89° Fahr., which was gradually cooled during twenty-five minutes to 86°. He remained twenty-five minutes in the bath. During this period the temperature in the rectum fell from 107·3° (the height observed after he had been six minutes in the bath) to 103·1°, or a fall of 4·2 degrees. The pulse in the bath had fallen to 90. He passed a loose motion in the bath, but while in it he became perfectly conscious. The pulse became full and incompressible. The sense of dyspnœa diminished. At 2.33 A.M., ten minutes after his removal from the bath, the temperature in the rectum had fallen to 99·1°, a diminution of four degrees; the pulse was 84, the respiration 36. In fifteen minutes more the temperature had fallen to 98°, or another degree; the pulse was 80 and the respiration 20 in the minute; he was perfectly rational and conscious. Hot bottles were then applied to the feet and warmth to the back. During the last three hours three ounces of brandy had been given. Eighteen minutes later, in spite of the external warmth, the temperature in the mouth had fallen to 97·8°, a total reduction within an hour of 9·5 degrees. He then went to sleep for nearly an hour and a half, during which period the temperature rose two degrees, or to 99·7°, when the hot bag was removed. At this time the state of the heart was found to be the same as on the 8th and 9th, or four days previously. The pulse was 100, full, regular, and strong; respiration 32. It did not appear advisable to give him the fatigue of examining the lungs posteriorly. There was no perspiration. During the two hours succeeding, the temperature gradually rose to 101·9° (2·2 degrees), and the ice-bag was then applied to the spine, but with very little effect on the temperature, which oscillated during nearly three hours, while the application was continued, between 101·2° and 102·2°—finally, however, falling to 100·9°, a reduction of one degree, when the ice-bag was removed. At 10 A.M. on the morning of the 13th, the seventh day after his admission, the eighteenth day of the disease, he had slept more or less continuously since 3 A.M.; the pulse was 82, jerking; respiration 36; tongue moist, with a thin white fur; patient was a little deaf from the quinine given the afternoon before. From 10 to 11.40 A.M. the temperature rose from 100·9 to 102·5°, or 1·6 degrees. The ice-bag was then reapplied, but there was no reduction of temperature for more than six hours, when at 6.15 P.M. it had fallen to 100·9°. During the whole of this period it oscillated from 102° to 102·8°. The pulse-respiration ratio maintained an average frequency of

84: 32. The bowels acted naturally. The patient was conscious, comfortable, and composed, without pain, though very prostrate. (There is an omission here when the ice-bag was removed.) Within an hour of the last fall of temperature (or from 6.15 P.M. to 7.15 P.M.) It had again risen 1·8 degree (from 100·9° to 102·2°).

The ice-bag was now applied continuously to the spine for fourteen hours, from 7 P.M. to 9 A.M. on the 14th. The temperature during the whole of this period oscillated between 101·8° and 102·8°, but only remained below 102° during the last three hours of the application, and it never fell below 101·8°.

At 9 A.M. on June 14th, after thirty-two hours of this treatment (the nineteenth day of the disease and the eighth after admission), the heart's apex was undiscoverable, and the dulness had risen to the first rib. There was intense friction at the base, and a loud double murmur at the apex, the nature of which, whether exo- or endo-cardial, was doubtful. The heart's sounds were exceedingly irregular, more so than the pulse. The patient coughed much, with distinctly rusty sputa. Both bases were dull, but the level of dulness was not further elevated. There was weak breathing at both bases, with pleural friction. The tongue was covered with a creamy fur; the patient was very tremulous; the pulse was weak, varying from 100 to 84; respiration 36. Since the preceding evening the patient had taken thirty grains of quinine, in doses of ten grains at intervals of four hours, a considerable quantity of brandy (six drachms every half hour), and abundance of beef-tea and milk. He had passed a considerable quantity of pale urine, sp. gr. 1008, acid reaction, no albumen nor sugar; the urine had a peculiar odor, like that of diabetic urine. Ordered to discontinue the quinine *pro tem.*; to continue the brandy, six drachms every half-hour. During this day (the nineteenth of the disease) the temperature from 10 A.M to 4 P.M. varied from 101·5° to 102·8°; the pulse was from 80 to 82, and very dichrotous; the respiration from 30 to 44. At 4 P.M. the ice-bag was reapplied, when the temperature was 102·6°, and was retained for three hours and three-quarters (until 7.45), when the temperature had gradually fallen to 100·1°, or 1·5 degree. At 8.30 P.M. of the same day I found that the cardiac dulness extended to the clavicle. The apex could not be felt. The sounds were excessively irregular and confused. Loud friction could be heard, and strong friction fremitus was felt over the whole cardiac region. The pulse was intensely dichrotous. The patient was excessively prostrate and tremulous. The tongue was more furred; but his manner was calm, natural, and composed. There was a slight return of pain in the joints, but no perspiration had taken place since the 12th—i. e., during the past forty-eight hours. A blister two inches square was ordered to be applied over the heart. From 8.30 to 11 P.M. the temperature remained below 102°. After this time it rose during four hours and a half, or until 3.30 A.M. of the 15th, to 103·6°. The ice-bag was now reapplied to the spine for five hours and a half—i. e., until 9 A.M. No appreciable effect was produced by it on the temperature during the first three hours, but this fell during the remainder of the period of application to 102·7°, or nine-tenths of a degree, and the ice-bag was then removed. The temperature rose again within an hour and a half to 103·4°, and remained above 103° nearly the whole of this day—falling, however, on two occasions (at 4 and 9 P.M.) to 102·9°.

There is an omission in the memoranda here as to whether the ice-bag was applied during this period, but I find it noted at 4 A.M. on the following morning that the ice-bag was re-applied, and I believe that it was continuously employed. During this day (June 15th, the twentieth day of disease and the third of treatment) the patient's prostration was extreme; but at one time a little perspiration appeared. The bowels acted naturally, with a semi-formed motion. Brandy was given in doses varying from three drachms to half an ounce every half-hour. The pulse varied from 100 to 90, and was excessively dichrotous; the respiration from 36 to 32.

During the night of June 15th—i. e., after seventy-two hours of this treatment—the temperature remained stationary at 103·4° during three hours; and though during the whole of this period, and subsequently for an hour and three-quarters, an ice-bag was continuously applied to the spine, it rose half a degree in the succeeding hour; and in the next forty-five minutes it rose rapidly 1·5 degree, reaching 105·4° at 4.49 A.M. on the 16th. The patient was placed in a bath of 96° Fahr. at 4.47 A.M., so that a rise of two-tenths of a degree followed his immersion. He was kept in the bath three-quarters of an hour, the temperature of the bath being gradually artificially lowered from 96° to 78°. During this time a gradual reduction of the patient's temperature ensued of 2·8 degrees, or from 105·4° to 102·6°. It fell seven-tenths of a degree more within five minutes after his removal, and continued sinking for another twenty-five minutes, when it had reached 98·7°; or within an hour and ten minutes the temperature had been reduced by 6·7 degrees. It then gradually rose, during the succeeding two hours, to 102·4° (3·7 degrees), when the ice-bag was re-applied; but in spite of this application, which apparently produced no effect, it rose 1·8 degree in two hours more, reaching at 10 A.M. 104·2°. Soon after his removal from the previous bath, the temperature of which was 99·5°, some perspiration was observed on the face.

He had taken in the last twenty-four hours twenty-eight ounces of brandy, three pints of beef-tea, four pints of milk, seven eggs, and three bottles of lemonade. The tongue was much cleaner. The pulse had, however, increased in rapidity from 84 to 120, and it was jerking and dichrotic; respiration 38 to 44. He was ordered to resume the quinine in doses of two grains every hour.

On June 16th (fourth day of treatment, tenth day after admission, and the twenty-first day of the disease), at 10 A.M., when the temperature had risen as before stated to 104·2°, he was again placed in a bath at 95°, and retained there forty-five minutes, while the temperature of the bath was gradually lowered to 86° Fahr. While in the bath the temperature in the rectum fell 2 degrees; and it fell 1·8 degree more in the succeeding half hour—viz., to 100·4° (mouth), when it slowly began to rise. A total reduction of 3·8 degrees was thus effected in less than an hour and a half, three-quarters of an hour only having been passed in the bath.

Seeing that the temperature threatened again to rise, and being desirous that this should be checked at once, and having on the last occasion found that the ice-bag to the spine had failed in doing this, I had the patient packed in the wet sheet wrung out of ordinary cold water (probable temperature about 60°); temperature of ward 72°. He was kept in this two hours; but in spite of it, the temperature had risen to 102·4°, or 1·6 degree, though a reduction of four-tenths of a degree was observed during the first half hour.

He had in the last eight hours taken ten grains of quinine. The tongue was more furred; the pulse was 120, dichrotous, and very irregular. In an hour and a half more after his removal from the pack, the temperature had further risen 2·1 degrees —viz., to 104·5°.

The patient was now placed in a bath of 101°, and kept there during three hours, or from 3.20 to 6.30 P.M. In the first twenty minutes of this time the bath was gradually cooled to 86°—i. e. until the patient's temperature began to fall; it was then gradually warmed during the ensuing hour and a half to 98°. The temperature of the bath was 100° for a few minutes: but it was again cooled to 97°, when the patient was removed.

The effect of this bath on the patient was as follows:—During the first fifteen minutes of his immersion the temperature in the rectum rose eight-tenths of a degree—reaching 105·3°. It then gradually fell during two hours to 100·2°, a reduction of 5·3 degrees, while the bath was being warmed to 98°; and then rose during the succeeding hour to 102·3°, when the patient was taken out because he complained of a feeling of exhaustion and shortness of breath, and of pain in the right side. The pulse during this period varied from 100 to 120; it was bounding and very dichrotous. The respiration was 42 to 44. After he had been an hour in the bath while the temperature of the water was 92°, and the patient's temperature in the rectum was 100·8°, he had a slight shivering fit, which was not repeated. He took brandy and food as usual while in the bath, and had an ounce of brandy given him on his removal to bed.

At this time (June 16th, the fourth day of treatment) some œdema of the hands was first noticed. (This increased much subsequently.) The patient now had some quiet sleep; but in an hour and twenty-five minutes the temperature had risen half a degree (from 102·3° to 102·8°), and the ice-bag was reapplied for two hours, during which the temperature rose to 104° and then again fell to 103·7°. A great increase in the cardiac dulness was noticed at this time. It filled the whole left front from apex to base. The patient's extreme weakness prevented any examination of the back. The respiration was suppressed in the dull area. At the acromial angle and upper axilla alone could any breathing be heard; here it was weak blowing.

Two hours later the patient was again put into a bath for fifty minutes: temperature of bath on immersion, 100°, gradually cooled to 77°. This reduced the temperature in the rectum 2·5 degrees (from 104·6° to 102°); and it was followed by a further fall during fifty-five minutes of 4 degrees, the temperature (mouth) now reaching 98°. A rigor then took place, and external warmth was applied. The temperature rose gradually, during three hours and a half, to 102·6°, when he was again put into a bath at a temperature of 81°. Five minutes after immersion the temperature in the rectum was 103·8° (i.e., it had apparently risen 1·2 degree, but the previous one was taken in the axilla). Thirty minutes in this bath reduced the temperature in the rectum one degree—namely, to 101·6°; that of the bath rose two degrees. The temperature then fell in fifty minutes to 98·2° (axilla), but it rose gradually during the ensuing two hours to 102° (or 3·8 degrees). Some moisture of perspiration was now observed on the face. He was now packed in the wet sheet: this had the effect, within forty minutes, of reducing the temperature 1·1 degree, but it rose in the ensuing hour 1·3 degree (to 102·4°), when the pack was renewed, with the effect of reducing the temperature in forty-five minutes by one degree.

June 17th (the twenty-second day of the disease, the fifth day of this treatment, and the eleventh day in hospital).—9.15 A.M.: The dulness had diminished in the left side. The acromial angle and upper axilla were resonant. The dulness was pyramidal, and had diminished in transverse diameter since the day before; for whereas then the whole infraclavicular region was dull, the loss of resonance now extended only to the cartilages of the first and second ribs, and only slightly beyond the cartilage of the third rib on the left side. The respiration was natural at the acromial angle and upper axilla on the left side, but ceased almost absolutely at the fifth rib in the axilla, with a little distant tubular breathing below this. On the right side, dullness existed at the fifth rib, mammary region, sixth rib, in axilla. The respiration right front was good to the level of dulness; below this suppressed. No râles audible. The patient had taken in the last twenty-four hours twenty-four ounces of brandy, two pints of beef-tea, and four pints of milk. He had also taken a grain of quinine every hour. He was very tremulous; manner agitated; dozed occasionally, but felt easier, and had less sense of dyspnœa; pulse 104, very dichrotous; respiration 36. At 10 A.M., temperature 102°; at 11.35, 102·2°. He was then put into a bath at a temperature of 91°, and retained there thirty-five minutes, while the temperature of the bath was reduced to 75°. During the first seventeen minutes after immersion the temperature in the rectum varied from 103·2° to 103·4° (the previous temperature was taken in the mouth). It then fell to 101·4° in the rectum (or 3·2 degrees), and continued to fall for an hour to 98·6° (in the mouth), when the patient had a shivering fit. In thirty minutes more it had risen to 100·1° in the mouth. The pulse was 96; the respiration 24. The patient was very weak, and was given an ounce of brandy every half-hour. He was now put into a pack, changed every half-hour, for four hours and a half. The temperature during this time oscillated between 100·6° and 101·6° in the mouth. During three hours of this time he took six ounces of brandy. The temperature in the next hour reached 101°, and the pack was renewed every twenty minutes. The patient's exhaustion was extreme. Tracheal râle appeared, but he was conscious when spoken to. Brandy was continued—an ounce every half-hour.

For the succeeding twelve hours and a quarter—from 7.40 P.M., on the 17th, to 8 A.M. on the 18th (the sixth day)—he was kept constantly in the wet pack, or in towels wrung out of iced water, and changed frequently. During this period the maximum temperature was 102·3°, the lowest 100·2 (all taken in the mouth). The pack was then discontinued for three hours, and no rise of temperature ensued.

June 18th (sixth day of treatment).—Has taken in the last twenty-four hours thirty-three ounces of brandy, four pints of milk, a pint and a half of beef-tea, a grain of quinine every hour, and three doses of three minims each of tincture of opium. Tongue cleaning; bowels have acted naturally; cardiac dulness as yesterday; dulness of right front diminished, now reaches the sixth rib; respiration decidedly freer. Patient stronger; can turn himself in bed. Pulse less dichrotic to feel; still intensely so by sphymograph—108. Respiration 44. The pack was resumed at 12 at noon, the temperature having risen to 101·6°, and continued till 8.30 P.M.; sometimes wrung out of ordinary water, sometimes wrung out of iced water. The temperature of the patient oscillated (in the mouth) between 100·5° and 102·5°; the latter only once. At 8.30 P.M. the temperature was 100·8°. The patient had had two natural motions during the day. The pulse was still 110; the respiration 28. The chest, now examined, showed that both sides of the back had become resonant to within a hand's breadth of the base. There was some friction at the level of dulness, and weak breathing without râle was heard here. Above the dulness the respiration was natural. Heart as before. Breathing labored; but no sense of dyspnœa. Tongue rather dry; patient quite conscious; felt comfortable. During the whole of the ensuing night the patient remained without the cold applications, and the temperature never rose above 101·8°, and during the latter four hours remained below 101°, the minimum being 100·4° (in the mouth). He continued to take two grains of quinine every hour.

On the following day, June 19th (seventh day of treatment, twenty-fourth of the disease, and thirteenth day in hospital), the cardiac dulness had fallen to the level of the first rib midsternum. There was a little subsultus tendinum, the pulse was still dichrotous, and œdema of the hands persisted. He was calm, and quite collected. He had taken in the last twenty-four hours 32 oz. of brandy, and nourishment as before. He had slept well during the past night, and had perspired freely on the face and body. At 11 A.M. he sweated profusely; temperature 101·9°. The perspiration then ceased, and the temperature rose, till at 12.50 P.M. it was again 102·8°. He was then put into the iced pack, and kept in it for three hours, with a reduction of temperature to 100·8°. The pack was then discontinued, but the temperature rose within three hours to 102·9°, when he was put into a bath at 97°, and retained there for thirty minutes, while the bath was cooled to 86°. During the first twenty minutes of the bath the temperature rose to 103·5°, or ·6 of a degree. It then fell to 102·2°, but the patient shivered, and felt great oppression of the chest and shortness of breath, and he was consequently taken out. The temperature fell for seven minutes after removal from the bath, but rose again immediately, and in three hours and a half had reached 103·8°. On examination of the chest both bases posteriorly were now found to be perfectly resonant. The respiration was freer, but there was abundant friction at both bases. The hands were much swollen. The breathing was very labored, and he complained of pain behind the sternum, and much cough. Pulse 112; respiration 28. The pack was now resumed, and continued during nine hours, being changed every half hour. Under its influence the temperature steadily fell, without any marked oscillations, from 103·3° to 100·7°, or 2·6 degrees; when the pack was left off for an hour, during which the temperature rose 1·5 degree, to 102·2°, and the pack was resumed for half an hour. At 10 A.M. the temperature had again fallen to 100·8°.

At 10 A.M. on the 20th (eighth day of treatment, fourteenth day since admission, twenty-fifth day of disease) there was considerable œdema of the hands and feet, and some puffiness of the eyelids. The pulse was 106; respiration 24. The pulse was dichrotous. The breathing was deep, quiet, and regular. He had had two loose motions in the last four hours. There had not been throughout any albumen in the urine (retained for quantitative analysis). Patient had taken twenty-four ounces of brandy in the last twelve hours. The quinine was now omitted temporarily, and the cold applications were never resumed.

The subsequent progress of the patient was as follows. He still remained in a state of excessive prostration, and for three days more took from twenty-four to twenty-nine ounces of brandy in the twenty-four hours; this was then on successive days reduced to nineteen and eighteen ounces. He continued to take the latter quantity daily until the 11th July, when it was reduced to sixteen ounces, and on the 25th July to ten ounces.

The temperature on the 20th of June, when the pack was omitted, oscillated between 101·6° and 103·1°, but only once reached this standard; the majority of the temperatures varied from 102° to 102·8°. In the following night it varied between 101·2° and 102°, being generally at or below 101·7.

On the 21st, the ninth day of treatment, he began to perspire profusely, and complained of pain in the right knee, and felt very ill and weak; œdema persisted in the face and hands. The temperature varied from 101·9° to 103·6°; it was commonly above 102°. The cough was troublesome, with purulent bronchitic sputa. The chest was clear, except at the extreme bases, where there was some dullness, and where friction was heard, together with moist râles. The pulse maintained a pretty uniform frequency of 112; respiration 32. He was ordered one grain of quinine every hour.

June 22nd.—During the ensuing twenty-four hours, until the tenth day of treatment and the twenty-seventh of the disease, the temperature varied from 102·3° to 103·7°. He perspired freely. Both knees and the right hand became painful, and the patient complained much of weakness and discomfort. The sputa on this day became clear and frothy; œdema persisted in the hands and feet and slightly in the eyelids. He continued to improve during the following day, the temperature only once reaching 103°, and falling gradually till on the morning of the 24th it had reached 100·7°.

24th (twelfth day of treatment, twenty-ninth day of disease).—Patient felt much better. He had continued to perspire freely, but he had no pain in the limbs. The cardiac dulness had fallen to the upper border of the third cartilage. There was intense friction over the whole cardiac region. The œdema of the eyelids and hands had diminished, but some still persisted in the feet. He had taken the quinine regularly. The tongue was nearly clean, and he ate a boiled sole for dinner. The pulse was 108, and still intensely dichrotous.

The pyrexia now gradually diminished; but the temperature only fell to normal, 98·4°, on the morning of the 8th July, the twenty-sixth day after the extreme pyrexia and the forty-third of the disease; and evening, and sometimes morning, exacerbations, varying from 99° to 102°, occurred occasionally until July 26th, or the sixty-first day of the disease. The patient, however, got up and walked about on the 19th July.

The cardiac condition gradually improved. The apex first became perceptible in the fourth interspace outside the nipple, then fell to the fifth interspace outside the nipple, and on the 28th July, when the patient was ordered to Eastbourne, it remained in the fifth interspace vertically below the nipple. Friction had, however, disappeared on the 13th July, and no cardiac murmur remains. The upper border of the heart's dulness did not return to its natural level (the fourth rib) till July 13th.

The lungs became quite resonant everywhere, but some friction remained at the right base as late as July 5th. The œdema of the hands and feet had disappeared on June 26th, the thirty-first day of the disease. Slight rheumatic pains continued and recurred in the joints as late as the 10th of July.

He took a grain of quinine every four hours up to the 10th of July; afterwards it was taken every six hours. He began to take cod-liver oil about the 1st July.

On July 16th, the first day he was able to stand, his weight was 8 st. 1½ lb. On July 24th, though there had been occasional slight pyrexia in the interval, he weighed 8 st. 6 lb., being a gain of 4½ lb.

(*To be continued.*)

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PERFORATIONS OF THE MEMBRANA TYMPANI.

By W. B. Dalby, M.B. Cantab.

A PERFORATION of the membrana tympani which can be seen by reflecting light into the speculum, and one through which the patient can blow when his nose and mouth are closed, at once makes evident its existence. But there remain a large proportion which the patient cannot demonstrate in this way (a child, of course, cannot be made to do this), and which, from their position, cannot be seen. This is especially the case where the perforation is in the anterior and inferior part of the membrane. Unless the Eustachian tube be impervious, the diagnosis is rendered conclusive by using Politzer's method of inflating the tympanum. In this way the air can be heard, through the otoscope, to impinge on the membrane if it be entire, and, when a perforation exists, can be heard to pass through with a blowing or squeaking sound; if there is much secretion in the tympanum it will be a bubbling sound.

The size of the perforation varies from a small hole that can just be seen, to almost total loss of the membrane. I am not aware that a case is on record where the loss of the membrane was complete; there always remains a rim, however small, at the circumference of the membrane. The form of a perforation is very various—circular, kidney-shaped, or irregular, with rough or smooth edges, as the case may be; some have a slit-like appearance, similar to what is sometimes seen after the membrane has been incised. These particulars are not mentioned in detail in the cases quoted; not because they are unimportant, but because even a full description, without a drawing, would convey but an indifferent idea of their appearance. In these cases, too, which are instances of the very large majority of perforations, the ulceration of the membrane took place from causes within the tympanum, such as scarlet fever and other exanthemata, or from catarrh of the tympanum; and was accompanied by a purulent discharge from the ear of longer or shorter duration. Those cases in which the perforation is a consequence of inflammation of the external auditory meatus spreading to the membrane, or where the disease commences in the membrane itself, or, again, where the perforation is the result of accident, belong to classes of themselves.

With regard to the effects which remain, and the consequences which are likely to occur when the discharge is allowed to proceed unchecked, they are twofold: firstly, the powers of hearing become impaired; secondly, the affection may lead to the formation of polypi, to pus in the mastoid cells, to caries, or even to inflammation of the membranes of the brain.

In what follows I limit my remarks to the effects first in order.

It may be stated generally that the existence of the perforation is not the cause of the deafness, but the cause is to be found in the disease of the middle ear, which gave rise to the perforation, and, still remaining, produces deafness. Many persons have perforations, and are not conscious of any impairment in hearing, and very often rightly so. I know two medical men who are in this condition.

The amount of deafness depends chiefly on the effects which the inflammation and the often long-standing discharge have left behind; and in proportion as alterations have taken place in the tympanum so will the hearing be affected. These alterations will of course vary very considerably, from slight thickening of the lining membrane of the tympanum, or of the membrane covering the ossicles or fenestræ, to caries of the ossicles and the labyrinth.

Dr. Von Tröltsch says "the existence of a perforation is generally the reason that a chronic otitis with otorrhœa often remains through the whole life of the patient, and can never be permanently healed." This, no doubt, sometimes may be the case; but the converse appears more frequently to hold good—viz., that the affection of the middle ear, which was originally the cause of the perforation, and is now accompanied by the discharge, is still the obstacle which prevents the perforation having a chance of healing; for it frequently happens that during and after treatment, when the tympanum has been restored to a healthy condition and the discharge has ceased, the perforation will heal.

Before going on to the treatment of perforations, I must say that the chief object of this paper is to testify to the success attending the practice of a line of treatment advocated by Mr. Hinton in the Guy's Hospital Reports of 1866 and 1868. The cases appended occurred in his practice at Guy's Hospital, and by his permission I noted and now record them. In one of the papers referred to he says: "The chief object of treatment should be to remove entirely the morbid secretions accumulated within the tympanum, and to keep the cavity cleansed." He goes on to say: "When the tympanum becomes congested, the swelling of its mucous lining soon closes the Eustachian tube; and its secretion having no other exit than through the membrane, perforations are continually kept open, or, after closing, are reopened by the pressure of discharge within."

The treatment pursued is not appended to the cases, as it would occupy too much space; and although it varied more or less in each instance, it consisted, in the main, in carrying out the same principles. The cavity of the tympanum was kept cleansed, and the accumulations were removed from time to time. When the ears had been well cleansed by an ordinary syringe, a syringe was used with a nozzle which fitted the meatus, and was defended by a piece of india-rubber tubing. In this way alkaline solutions were sent through the tympanum and Eustachian tube, passing out through the nose. This was done once or twice a week. After a time astringent solutions were substituted for the alkaline, five grains of sulphate of zinc to the ounce of water being the one generally employed.

By this plan considerable accumulations of secretion are often removed from the tympana and Eustachian tubes, and masses of secretion are expelled which have evidently been in the Eustachian tube for some time, and have formed almost casts of the part where they have been lying. The tympana were regularly inflated on Politzer's plan, and astringent lotions, containing a little opium, were poured into the meatus at night. A loudly ticking watch was used to test the changes in hearing from time to time; but more reliance was placed upon the voice. In using the artificial membrane, the hearing distance of a watch may sometimes be increased only by a few inches, and yet the voice in conversation may be heard with very much greater ease. The artificial membrane was not tried where the hearing was sufficiently good for ordinary purposes. Although perforations of very large size frequently heal during and after treatment, this was not observed in any of the following cases, as they were not seen after sufficient lapse of time had been allowed for the reproduction of the lost tissue.

Case 1.—Ellen D——, aged fourteen. August 27th, 1869. Has had discharge ever since she had scarlet fever, six years ago. Watch in contact on each side. Small perforation at anterior and inferior part of right membrane. Large perforation, with ragged edges, in left membrane.

Nov. 16th.—Discharge ceased. Hearing not improved. Artificial membrane increases hearing to 6½ inches on either side.

Case 2.—Sarah D———, aged twenty-eight. June 1st, 1869. Discharge from both ears from infancy. Cause not known. Nearly the whole membrane on both sides destroyed. Blows freely through both. Watch in contact on either side.

18th.—Discharge nearly ceased. Watch three inches with left, and two inches with right ear. With artificial membrane 20 inches with right, and 10½ inches with left ear.

Oct. 2nd.—Discharge entirely ceased. With artificial membrane, 3 feet with right, and 18 inches with left ear. Ordinary conversation heard well.

Case 3.—E. C——, aged sixteen. June 25th, 1869. Discharge from both ears for fifteen years after scarlet fever. Small slit-like perforation at posterior and inferior part of right membrane: small irregular perforation of left in same situation. Could blow freely through both ears. Watch in contact with either ear.

Oct. 12th.—Discharge ceased. Watch heard with right ear 1½ inch; with left, 2 inches. With artificial membrane, 2 feet with right, 1 foot with left ear. During treatment, for some days together she became very deaf from Eustachian obstruction. This was always relieved by using Politzer's bag.

Case 4.—Maud F——, aged eleven. July 6th, 1869. Discharge since infancy from both ears. Cause not known. Said by parents to have appeared during teething. Perforation at the posterior and inferior part of right membrane, with a small polypus. Perforation of left membrane in same situation. The polypus was removed, and caustics regularly applied, so that by August 13th it had thoroughly disappeared. Watch in contact with right ear. Watch not heard at all with left ear.

Nov. 5th.—Discharge ceased. Watch 18 inches with right ear, 1 foot with left.

Case 5.—Emma W——, aged twenty. August 28th, 1869. Discharge from both ears for twelve years after scarlet fever. Left ear: a large polypus filling up entirely the meatus; no perforation. Right ear: a moderate-sized perforation about the middle of the membrane. Watch heard ½ inch from ear. The polypus was removed, and was treated with caustics. On September 24th the polypus had completely disappeared. The discharge from the right ear had not entirely ceased, but very nearly so. The watch was heard at 2 feet 8 inches, and ordinary conversation very well. She did not come again until the end of November, when the discharge from the right ear was nearly as copious as on her first visit. The hearing had returned to its former condition, ½ inch with watch. This case shows how necessary it is to continue treatment until the discharge has *entirely* ceased. If this is not done, some of the discharge will collect in the tympanum, and becoming the source of irritation, the tympanum will fall back into its former condition, and the treatment has to be commenced afresh. On this account hospital patients are treated under disadvantageous circumstances, for they often cease to attend before the discharge has entirely ceased; and this is especially the case when the hearing is much improved.

Case 6.—The following is a good example of the mode in which a perforation may occur during catarrh of the tympanum. Maria H——, aged nineteen, had suffered for four years from chronic catarrh of both tympana. The right ear was under treatment; nothing in the way of treatment had been done to the left ear. On Sept. 5th she said that four days ago great pain had come on in the left ear, when she went to bed. The pain lasted for between two and three hours, when she went to sleep. On awaking in the morning she found herself considerably more deaf on that side than she was before. There was a small perforation about the middle of the membrane, from which oozed a clear discharge.

Case 7.—Henry T——, aged thirty-two. Sept. 23rd, 1869. Could hear quite well twelve months ago, when he had a sore throat for some time. Never had syphilis. About this time noticed that he was getting deaf. A few weeks afterwards observed a discharge from each ear, and from that time his hearing has been the same as now. Watch one-fourth of an inch from right ear, and one inch from the left. A large perforation at the upper and posterior part of right membrane; perforation in the same situation in the left. No discharge for four months. Hearing not improved by treatment, or by artificial membrane. Here the affection of tympanum was secondary to that of the throat.

CASE 8.—Herbert B——, aged twelve. Sept. 28th, 1869. Discharge from right ear for five years after measles. A slit-like perforation, with clean edges, about the middle of the right membrane. Could not blow through. Watch half an inch from the ear.

Nov. 5th.—The discharge had ceased, but the hearing had not improved.

9th.—Hearing improved to eight inches with artificial membrane.

18th.—Discharge slightly returned with the use of the artificial membrane, but disappeared again on treatment.

CASE 9.—William P——, aged twelve. Oct. 5th, 1869. Could hear well two years ago. At that time became deaf during a severe cold. Discharge ever since. Perforation about the middle of right membrane, and at posterior and inferior part of left. Watch four inches from each ear.

Nov. 18th.—Discharge ceased. Watch fourteen inches with each ear.

From the history of this case, there is every reason to believe that the origin of the perforations was acute catarrh of each tympanum.

CASE 10.—Annie W——, aged eighteen. Oct. 18th, 1869. Discharge from both ears from infancy. Cause not known. Small perforations of both the membranes about the centre. Watch not heard in contact with left ear. Could hear a loud click of nails about half a foot from the ear. Watch half a foot with right ear.

Nov. 16th.—The hearing of the right ear had improved to two feet with watch. No improvement in the left. Discharge less.

23rd.—Discharge ceased. Artificial membrane gave no improvement to either ear.

CASE 11.—Martha U——, aged twenty. Feb. 5th, 1869. Discharge from left ear from infancy. Worse last two years. A polypus was removed. Watch not heard in contact. Attended very irregularly. By Oct. 19th all trace of polypus gone. Discharge quite ceased. A small perforation. The membrana tympani fallen in and clasping the malleus. Watch two inches. Hearing increased by artificial membrane to eight feet. Ordinary conversation heard with great ease with this ear.

Putting on one side, therefore, those cases in which the destruction has either involved the labyrinth, or has so entirely disorganised the middle ear as to render all chance of restoration impossible, it would appear that in cases of perforation of the membrana tympani, which have occurred from whatever cause, either in childhood or later in life, and have been accompanied by a purulent discharge, the results are exceedingly varied. We find cases in which the perforation is large, the discharge of many years' standing, the deafness very considerable, recovering the hearing as the discharge ceases and the parts return to a healthy condition. Again, we find cases in which the perforation is small, the discharge of only a few weeks' standing, and the hearing more or less impaired, recovering from the discharge without any improvement in the hearing. And, again, some cases of both these two classes will be benefited by the artificial membrane, while others will not be improved by its use. No doubt, even in those cases where a considerable amount of hearing remains, it does not always happen that with the cessation of the discharge the hearing improves. These cases, however, are rare. Instances of this are found in Cases 6 and 7. I hope to notice on a future occasion the conditions which may lead to these results, and the treatment available for them.

Still continuing the subject of one result in perforations of the membrane arising from tympanic disease—namely, the impairment of hearing,—I find, from my notes of 29 cases of this kind, taken without reference to any particular points of interest, but in the order as they came under my notice, that of 17 in which the perforation was small or of moderate size, in 12 the hearing was improved, with or without the artificial membrane, as the tympana became in a more healthy condition, and in 5 there was no improvement; of 12 in which the membrane was nearly gone, in 10 the hearing was improved under similar circumstances, in 2 not at all.

The size of a perforation is of itself no guide to a prognosis, increase in hearing power depending on entirely different causes. One of large or moderate size is more amenable to treatment than a very small one; and this is what might be expected when it is considered how much more easy in the former cases it is to clear out the tympana and Eustachian tubes, thus allowing the solutions to be in free contact with the whole extent of lining membrane. Just as the symptom of deafness was shown to be due not so much to the perforation as to the disease of which it was an effect, so the degree of hearing bears no relation to the amount of tissue lost. Drs. Von Tröltsch and Politzer agree in this point: but the latter is also of opinion that "the patients hear better as a rule when the perforations are of medium size than when they are very small, because in the former case the sonorous waves, avoiding the membrana tympani, malleus, and incus, pass through the perforation directly upon the base of the stapes, and may thus reach the labyrinth to quite an extent."

A girl, seventeen years of age, whom I am now treating for catarrh of the left tympanum, has a very large perforation of the right membrane, through which she can blow freely. From her history, this must have existed for three or four years. There is no account of a discharge, which, however, no doubt, existed at some time, and was overlooked. The tympanic disease which caused the perforation must have been extremely slight; for the hearing on this side, although impaired, is so good that she considers it to be perfect with that ear.

When the artificial membrane fails or cannot be worn without producing irritation, which sometimes happens, the plug of cotton-wool, as commonly used in place of it, gives excellent results. The principle of its action is, of course, the same; still, notwithstanding this, it by no means follows in practice that, when one succeeds, the other will be equally successful, and for this reason both should always be tried.

A young lady had become a little deaf at five years of age. She recovered for a time under Mr. Toynbee's care; but was deaf at intervals up to five years ago, when discharge from the right ear began. When I saw her last year, the membrane was nearly all destroyed on that side, and she could blow freely through that ear. A watch was heard at two feet from that ear, but conversation very imperfectly. A weak solution of alum and sulphate of zinc was syringed from the meatus through the Eustachian tube twice a week for three weeks. At the end of that time the discharge had ceased, and the hearing had considerably improved. Still she was very deaf. The artificial membrane had no effect; but with the cotton-wool, which she easily adjusts, she can hear very well indeed with that ear. The ulceration of the membrane took place without doubt during catarrh of the tympanum, of which there was all the appearance on the left side. This membrane had not given way, and she was more deaf on that side than the right. In this respect the following is a very similar case, inasmuch as the origin appears to have been the same. Here the left membrane was entire, and the worst ear. It also illustrates the fact that a perforation is not necessarily an unfavorable termination to unchecked catarrh of the tympanum.

Miss L. C——, aged twelve. Deaf with both ears, and discharge from right since three years of age. Not coming on during or after illness. A large circular perforation, with red clean edge, about the centre of the right membrane. Watch heard at four inches from ear; conversation very badly. Long-standing tympanic disease of left side, but no perforation. Both Eustachian tubes, as in former case, pervious. Air entered the left tympanum quite freely, but gave no improvement. After three weeks' treatment, the discharge from the right ear had ceased, and the watch was heard at eighteen inches, but the voice not perceptibly better. Although the condition of the tympanum was more healthy, the hearing was no better, either with the cotton-wool or the artificial membrane of the ordinary kind; yet, to all appearance, it was just a case to be benefited by one or the other. There was an entire absence of any nervous affection. The turning-fork could be heard perfectly on the head, the sound being intensified when the meatus of both sides were closed. Fatigue or excitement did not affect the hearing. I finally tried an artificial membrane, consisting of a small bulb of india-rubber, which not only closed the opening in the membrane, but projected into the tympanum; and by wearing this she could hear a conversation very well.

This is interesting so far as it tends to favor the explanations which have been given of the mode of action of the artificial membrane and the cotton wool—namely, that the effect is produced by approximating the articulations of the ossicles, or supplying their place when these bones are partially wanting. So that where one form does not exercise the requisite pressure another should be tried.

Distinct and unmistakable nervous disease may arise in a patient who is the subject of perforate membranes, and with such the diagnosis will be easily made; but when the symptoms of what is spoken of as nervous deafness, which would be quite evident in the absence of perforation, are of such a character as to be masked, as it were, by symptoms which are equally present with tympanic disease and disease of the labyrinth, it then requires some additional fact to demonstrate the complicated nature of the affection. By way of illustration, I saw in June last a patient, aged forty-nine, with perforation of both membranes, coming on after scarlet fever at seven years of age. He had had a trifling amount of deafness, which had not given him much inconvenience till six weeks previously. From that time he had been getting gradually more deaf. He was very deaf when I saw him; incessant tinnitus in both ears; the tuning-fork not heard at all through the cranial bones; and occasional attacks of giddiness. Such a case is plain, and no treatment will be necessary. On the other hand, however, the diagnosis at times is somewhat difficult.

Mr. C——, aged thirty-five, under my care last April, had small-pox at three years of age, followed by discharge from both ears, which had continued more or less ever since. The tympanic membrane on the right side was nearly all gone. There was a large kidney-shaped perforation on the left side. He could blow freely through both ears. The watch was heard at eight inches with the right, and four inches with the left, ear; conversation very badly. The discharge was slight; and, after three weeks, had entirely ceased. The hearing was no better. Neither the artificial membrane nor cotton-wool gave any improvement; and yet this case appeared at first sight to differ in no respect from many others in which relief is obtained in this way. The tuning-fork was heard perfectly well on the head. No tinnitus or other ordinary unfavorable symptom. It was a suspicious fact that, although the tuning-fork was heard so well through the cranial bones, the sound was not intensified on closure of the meatus. He was quite satisfied on the point after repeated trials both by himself and by me. Still this alone could not be regarded as a sufficient indication of a nervous lesion. There was however this circumstance, which, when taken in conjunction with the previous symptom, was, I think, conclusive—viz., that although the tympana and Eustachian tubes, as far as one could judge, had been in about the same condition for several years past, the hearing had been getting gradually but decidedly worse during the last two years. Without this feature in the case, it would be very difficult to explain why he was not benefited by treatment which might reasonably have been expected to improve the hearing, if the conducting apparatus had alone been at fault.

When the disease appears to be tympanic, but when after treatment the condition of the lining membrane of the tympanum and Eustachian tube has become satisfactory, without a corresponding change in the hearing, and when the artificial membrane or cotton-wool has no effect, I cannot but think that, if the history and symptoms be caregully investigated, there will generally be found a sufficient explanation in the coexistence of a nervous affection with the perforation and tympanic disease; and, in concluding this part of the subject, I would urge the importance of recognising this condition, as it is only by so doing that those cases which admit of treatment, and those which do not, can be properly separated.

Up to this point the cases under notice have been those in which the Eustachian tube has been not only pervious, but where any obstruction existed it was to so slight an extent that it was without difficulty overcome by using Politzer's inflation. Such is by no means always the case. Occasionally, although some air may pass through the tympanum by this plan, the tube is not sufficiently free to admit the passage of fluids from the meatus. So long, however, as air will pass at all, this condition will be relieved by inflation with the Eustachian catheter, and by injecting occasionally through it a little warm solution of soda into the tympanum. After this has been practised for some little time, the other plan of injection from the meatus will be found to be quite practicable, and until this can be done, a successful result is, I bebelieve, extremely improbable. The not very frequent, though serious, complication in tympanic disease which has resulted in perforation of the membrane—viz., complete occlusion of the Eustachian tube—I must leave for consideration with some other effects of this condition.

From what has been said before, it will be seen that the diagnosis of occlusion of the Eustachian tube, when the tympanic membrane is perforated, is quite easy. If the patient cannot blow through the perforation, and if, in addition to this, air cannot be passed through either by Politzer's method or by the Eustachian catheter, there can be no doubt that the tube is impervious; any mere obstruction would be overcome by these means. This complete occlusion is only met with when the disease of the middle ear has been of very long standing, and it is not due, as in obstruction, to a swelling of the mucous membrane, but is a stricture, the seat of which is the submucous areolar tissue.

The extreme deafness which is present in a similar condition of the Eustachian tube, when the tympanic membrane is entire, is not always met with in a proportionate degree when the membrane is perforated. But it must not on this account be regarded as a trifling complication; for, in the first place, it entirely precludes the possibility of treating the whole mucous membrane lining the middle ear by passing fluids from the meatus through the Eustachian tube, and for this reason it becomes almost next to hopeless to ever get entirely rid of the discharge; there is therefore not so much chance of better hearing as the result of a more healthy condition of this surface. In the next place, as far as I have observed, it is rarely that, with this condition, much benefit is derived from wearing an artificial membrane.

This does not always hold good however; for in February, 1870, I saw a gentleman, aged thirty-two, in whom a perforation on the left side was the result of scarlet fever in 1848. From that time he had never been free from a discharge. The membrane was almost completely destroyed; but by wearing an artificial membrane, in the form of a plug of cotton-wool, he had been able to hear conversation remarkably well for many years past. Without this aid he could with difficulty hear a raised voice close to the ear. The Eustachian tube was on this side impervious. He was totally deaf on the other side.

I should be inclined, then, to think it quite possible that, although the occlusion of the Eustachian tube renders the otorrhœa difficult to treat with success, the extreme deafness met with in these cases may be due altogether to causes situated in the tympanum (I am here speaking of cases where the labyrinth is not affected), and not be owing to the closed tube at all; for in addition to the act that, in conjunction with this occlusion, the tympanic disease has been always most severe and long-continued, it is not easy to see how the imperviousness of the Eustachian tube can affect the hearing when the membrane is perforated. For it would seem that, in such cases, the part it plays in the conducting apparatus of keeping the balance of air equal on both sides of the membrane, was no longer required. These considerations should have some weight in determining the propriety of an attempt to render the Eustachian tube pervious by dilatation with laminaria bougies. This process is tedious and somewhat painful. In the event of succeeding, relapses are frequent, leaving all the work to be done over again. More experience as to the results of this treatment, where the membrane is perforated, is much wanted; but, as far as I am able to judge, they are not encouraging. (This does not affect the question of dilatation of the Eustachian tube when the membrane is entire.) In the case, however, of a patient with total deafness on one side, and considerable deafness on the side with a perforation of the tympanic membrane and an impervious Eustachian tube, where the tuning fork could be heard on that side well through the cranial bones, and where there was no aid from an artificial membrane, if the patient, with a distinct understanding of the probable results, should elect to undergo the treatment as a *dernier ressort*, it should be considered. And then it should be done more with the idea of improving the condition generally of the middle ear, and with it the hearing, than in the hope of any mechanical benefit arising from a pervious Eustachian tube.

A young gentleman, aged twenty-three, had good hearing on the left side. The disease of the right ear dated from his seventh year of age, since which time he had been deaf on this side, and had had a discharge from the ear. There was very little of the membrane left, and what there was had fallen in, and was adherent to the promontory; the lining membrane of the tympanum was red and tumid; the Eustachian tube was quite impervious. He could hear a loud-ticking watch at one inch from the ear, but for practical purposes the ear was useless. No sort of artificial membrane improved the hearing. The patient, who understood his condition, and the surgeon who sent him to me, were in hopes that the Eustachian tube might be rendered pervious. I advised, however, that the treatment should be confined to an endeavor to reduce the discharge as much as possible. With this view he was to wear in the daytime a piece of cotton-wool, soaked in strong liquor plumbi, pressed up against the tympanum, and he was to have a syringe which he could himself use night and morning. In this way the discharge will often so far subside as to give very little trouble; but, when the Eustachian tube is quite closed, it scarcely ever ceases altogether. This is an excellent way of treating granulations, which are not unfrequently seen on the membrane when it is perforated, and on the wall of the tympanic cavity when the membrane is nearly gone.

In the left ear of a surgeon whom I saw in January, 1870, there was a small perforation at the upper part of the membrane, and the rest of its surface was a mass of exuberant granulations. He had been very deaf on that side as long as he could remember, had occasionally a good deal of discharge, and was never entirely free from it; at that time it was profuse; the Eustachian tube on that side was impervious. He did not get any better hearing, but the discharge had so far subsided after using the liquor plumbi in this way for three weeks as to give him very little trouble, and the granulations had disappeared. To improve the condition of the tympanum, and thus to diminish the discharge, is as important as to increase the hearing power; for it should never be forgotten that as long as this is done the disease will not advance to caries of the temporal bone, and that consequently the danger of the brain and lateral sinus becoming involved is avoided. This part of the subject, so far as it relates to the fatal effects occurring in cases of neglected otorrhœa, is not at present under notice; but one result of perforations—viz., caries of the mastoid process, producing a chronic discharge behind the ear, lasting for an indefinite period—calls for a few words to illustrate that the same plan of treatment as applied to the tympanum holds good for the mastoid cells. A patient with a perforation of the membrane may have a discharge from an opening over the mastoid process for years, the purulent matter having passed from the tympanum through the mastoid cells, and either made for itself an external opening behind the ear, or having been let out by an incision in this situation. If the syringe, with the nozzle guarded by india-rubber, and filling the meatus, be used, the fluid will be sent through the tympanum and mastoid cells, and in passing out at the external wound (which it does sometimes in a full stream) will wash away completely all secretion. Let this be done every day, and anyone who has not before seen this treatment adopted will be truly surprised at the rapidity with which the wound behind the ear will heal. This plan of clearing the tympanum and mastoid cells at the same time of all purulent secretion is, I venture to say, a most rational one. It is based on the same principle as that advocated for treating the tympanum and Eustachian tube, and is followed by the same satisfactory results.

Accompanying perforations, the mastoid cells will be found to be more frequently involved when, from any reason, such as an impervious Eustachian tube, or a polypus growing from the wall of the tympanum, the discharge is kept more than usually pent up in that cavity. Two cases will be sufficient for illustration.

A girl, M. M. W——, aged twenty, whom I saw in Nov., 1870, had had an opening over the right mastoid process, with a constant discharge, for five years. The tympanic membrane was almost gone; there was a small polypus growing from the roof of the tympanum. The perforation was not the result of any of the exanthemata, but, as far as one could judge from the girl's account, came on during an attack of acute catarrh of the tympanum. She could hear a loud-ticking watch in contact with the ear. The polypus was removed, and caustics were applied regularly to the root for five weeks, at the end of which period the polypus was entirely destroyed. During this time the tympanum and mastoid cells were cleansed in the way directed; and, as the Eustachian tube was pervious, the solution passed freely out through the inferior meatus of the nose and the external wound at the same time. After this treatment had been pursued for three weeks, the wound behind the ear was healed. She could hear a watch at eight inches from the ear, and conversation, very well. The hearing did not improve beyond this, though she was under treatment in all for seven weeks.

July 20th, 1870.—J. G——, aged nineteen, had had a discharge from the left ear since infancy. The membrane was very largely perforated, and the deafness on that side was complete. Six months previously he had suffered from a good deal of pain over the mastoid process. In ten days an opening had formed, and there had been a discharge ever since from the wound. He was treated in the same way as the previous case, and by August 17th the wound was healed.

It seems hardly necessary to observe, while on this subject, that whenever a patient with a perforation is suffering from pain with extreme tenderness and swelling over the mastoid process, nothing is gained by waiting for the presence of pus to be assured by fluctuation. The sooner an incision is made down to the bone the better: this may be carious, when it will sometimes break down on pressure with the point of the knife or probe; whether it is so or not, at any rate, by this procedure, followed by a stream of water passed through the tympanum and external wound, the pus will be washed out of the mastoid cells, and, having a free outlet, the danger of the affection advancing to within the cranium will be lessened.

The subject of polypi—inasmuch as, although they are usually present as an effect of perforations, they may still exist independently of them,—and the modes in which caries of the temporal bone leads to fatal results, merit a separate and detailed account. Thus far, however, my remarks on the treatment of perforations of the membrana tympani arising from tympanic disease conclude with this paper—that is, so far as they relate to the defective hearing and discharge from the middle ear, whether appearing at the external meatus, or also from a wound communicating with the mastoid cells.

(*To be continued.*)

REPORT OF

THREE OBSTETRICAL CASES OF AN UNUSUAL CHARACTER.*

By J. Harris Ross, M.D., M.R.C.S.

A CASE OF DOUBLE UTERUS, WITH CONCURRENT PREGNANCY.

Mrs. C——, the subject of these remarks, is a woman aged thirty-three. She has been married fourteen years; and, previous to the circumstance I am about to relate, had been delivered of six children. With the last three I was the medical attendant; but had never before had the opportunity of examining the uterus, as the child on each occasion was quite at the outlet of the vagina when I arrived at her house. With the exception of once (when she was prematurely delivered of a seven months' child) the labours were all natural, and she always made a good recovery.

She sent for me in May, 1870, as she had considerable hæmorrhage. She told me that she was pregnant, and that she had not menstruated since the previous February. On examination I found the os uteri very flaccid and partially open, and another opening close to the left of it, which I supposed to be an excavated ulcer, and the cause of the hæmorrhage. As she objected to the use of the speculum, I ordered her to keep the recumbent posture, and to use an astringent injection, which I sent her, together with some tonic medicine. In a few days the hæmorrhage ceased, and she got about her household duties until July 16th.

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* Thesis for Graduation at the University of Glasgow, 1871.

On the morning of that day she sent for me in a great hurry. I found her with strong labour pains, and on making an examination I found a bag of membranes protruding from the uterus, which ruptured during my examination. After this the pains left her. I saw her several times in the course of the day, but the pains did not return until about nine o'clock in the evening, when they were of a very feeble character. On examination at this time I found another bag of membranes protruding, which I ruptured, as I thought it might stimulate the uterus to contract. A head then presented, and, after some time, the pains being very feeble, a fœtus was expelled. On again examining, a leg presented, and after a while I delivered her of a second fœtus, and then of a double placenta—that is, one with two cords. The children were, I should judge, of nearer six than five months' growth. After I had removed the placenta the patient exclaimed, "I am sure there is another, Mr. Ross"—meaning another child. As the uterus felt rather bulky, I introduced my hand into the vagina, and my finger into the uterus, to make sure, but found the cavity quite empty. At this time the second opening in the uterus was plainly to be felt. The whole course of this labour was very different from her other ones; the pains were very feeble and the labour unduly long: this I attributed to her having twins.

About a week afterwards the patient again declared that she had another child in the womb; but I pooh-poohed it, as I had made such a careful examination after delivery that I felt certain I could not have left one behind. She, however, persisted in her statement. One day I went to see her, and, my hand being very cold, I placed it upon her abdomen, when I plainly felt the movements of a child, and upon applying my stethoscope the fœtal heart was quite audible. On examination per vaginam the two openings could distinctly be felt, when it at once dawned upon me that I had got a case of double uterus, with both sides impregnated at the same time. On introducing a sound into the apertures there was no doubt they both opened into a cavity or cavities, but, as she was still pregnant, I did not then push the matter further. When laid flat upon her back the tumour in the abdomen was decidedly more to the right than the left side. As there was now no doubt about her being pregnant, I told her to send for me directly she was in labour.

She went on well until the morning of October 31st, when she sent for me at 6 A.M. On my arrival I found the head on the perineum, with the membranes protruding. I ruptured them, and delivered her of a female child of full growth in about a quarter of an hour afterwards. On examining the uterus (after removal of the placenta) I could get my thumb into one opening, and, by a little manipulation, my finger into the other, and could distinctly feel a septum between them. She stated that she had menstruated three times since her miscarriage of twins in July. Both mother and child made a good recovery.

At the end of five weeks, or on Dec. 13th, I made a careful examination of the patient with the aid of my friend Dr. Hall, of Brighton, and as I thought it would corroborate my statement, I asked him if he would kindly write down his ideas on the case, and I give them in his own words:—

"On December the 13th, 1870, my friend Mr. Ross kindly permitted me to examine with him the uterus of a patient whom he had delivered about six weeks previously of a female child of full growth; and fifteen weeks and two days prior to this delivery he had also attended her of a twin abortion, the fœtuses being between the fifth and sixth month of pregnancy—both were born dead, and the placenta was double, with two navel cords. The condition of the uterine cervix on these occasions led him to suspect that the woman possessed a double, or what is obstetrically denominated a 'bipartite or bilocular uterus,' in both halves of which concurrent pregnancy had taken place; and he determined, as soon as the patient had recovered satisfactorily from her confinement, and with the consent of herself and her husband, to make, conjointly with me, a careful examination of the organ per vaginam. This was done with as little inconvenience and suffering to the poor woman as possible, who appeared in good general health, and was suckling her infant, a healthy-looking though somewhat small child for one born six weeks previously and at full time. On examination per vaginam the uterus was found to have undergone fair contraction or involution, being (with the exception of a slight inclination to anteversion) normally situated in the upper part of the vagina. On the front of the cervix two openings were easily detected, situated somewhat obliquely from the right to the left. The upper or right opening was sufficiently wide to admit the index-finger of the right hand for nearly an inch, and the lower permitted the point of the same finger to pass through the lips. The edges or lips of both apertures were somewhat flaccid and gaping, the right one more so than the left. Upon introducing the sound into the upper or right aperture, it passed quite freely into a cavity two inches and a half deep to the summit, where it was cautiously moved in every direction with a view of discovering any communication which might exist between this and the supposed adjoining cavity; and on withdrawing the instrument the same caution was exercised, and for the same purpose, but no such outlet or passage could be detected. The sound was then passed into the lower or left aperture, and traversed quite easily a cavity two inches and a quarter only deep, nearly parallel to the preceding cavity. Thus between the two cavities there was a vertical partition or septum extending from the fundus to the front of the cervix uteri, and completely dividing the latter into two separate and distinct cavities. Upon introducing the speculum per vaginam, the 'ora uteri' could be readily seen, situated obliquely across the cervical front, the larger opening being above and to the right of the lower or smaller one. Some little pain was caused upon introducing the sound into the uterine cavities and moving it about, but the woman behaved remarkably well and patient during the whole time of the investigation. I think it will be readily admitted that this was a most unique case of concurrent impregnation of a bilocular or double uterus, in which the smaller or posterior cavity, unable to bear the excessive distension occasioned by the growth of twin fœtuses, expelled its contents by abortion between the fifth and sixth months; and that the right upper and larger cavity, thus relieved from a sense of resistance to its steady growth and expansion, was enabled to carry its contents to the full period of gestation."

The occurrence of menstruation, also, at three separate monthly epochs, between the premature births in July and the delivery of a full-grown child in the following October, is a most singular and corroborative proof that this was a case of concurrent impregnation in a bilocular uterus, the aborted cavity resuming its menstrual function in due time after expulsion of its fœtal contents.

The case is also very interesting in a physiological point of view; showing that the muscular fibres of one cavity must have been entirely independent of the other, from the fact of the left having the power of expelling its contents without affecting the right.

A CASE OF PUERPERAL CONVULSIONS TREATED BY CHLOROFORM AND VERSION.

I was sent for on Sunday, Dec. 5th, 1869, at 6 P.M., to see Mrs. C——, aged twenty-two, who had fallen from her chair in a fit. She was lying on her bed, and had a flushed face and bounding pulse; and expected daily to be delivered of her first child. I was informed that the fit was sudden, and came on whilst sitting at tea; that she struck her head against the table in failing; that she had complained of headache all day, but had been about her household duties. She had most violent paroxysms of convulsions, which came on about every ten minutes, leaving her during the intervals perfectly unconscious.

On making a vaginal examination, I found the os extremely high up, so as hardly to be reached with the finger; it was not at all dilated, though very flaccid and abounding with secretion. There was no "show." I at once sent for a medical friend of mine, and, after consultation, we decided to give chloroform, and try to evacuate the uterus as quickly as we could. After placing a cork between her teeth, my friend gave her chloroform, whilst I proceeded to dilate the uterus with my fingers. After gradual extension of the os for about half an hour, I was enabled to introduce my left hand into the uterus, and had no difficulty in turning, and bringing the legs beyond the vaginal opening. My friend then took my place, and speedily completed the delivery. After the removal of the placenta there was a considerable escape of blood; but this was easily controlled by external manipulation over the uterus. After a little artificial respiration, I was pleased to find the child was alive.

Our patient had but one attack of convulsions after the administration of the anæsthetic, and that was during a slight interval when we had removed the lint from her face. Half an hour after delivery, her pulse had diminished from 140 to 120, and she had no convulsions. We then left the house, and on again visiting her an hour afterwards she had had no return of the convulsions, but was still unconscious.

Dec. 6th.—Seen three times during the day in a semiconscious condition, and when spoken to sharply replied, "Don't;" "Let me alone." Has neither eaten nor drunk anything since delivery; urine dribbles away involuntarily; has one hand constantly between her legs; pulse 126. She is very morose when offered nourishment, and on one occasion knocked a cup out of my hand.

7th.—Took a cup of beef-tea freely during the night; cerebral symptoms and moroseness much the same as yesterday. I ordered clean linen to be applied, and the administration of beef-tea, eggs, milk, and brandy, &c. I saw her again in the afternoon, and found that none of my directions had been carried out, and that the nurses were both in a state of intoxication. I at once had the services of these dipsomaniacs supplanted by that of a temperate woman. In the evening I found the patient had taken nourishment literally, had passed water at will in a vessel, and would answer a question when asked; still she was not quite conscious.

8th.—Asked questions of the attendant during the night, who showed her the baby, and the patient laughed at the idea of its being her own. Talked quite rationally, and ate a chop for dinner.

From this date she gradually recovered her strength. She sat up for two hours on Dec. 15th, and was discharged quite well on Dec. 27th. She states that she remembers nothing from the morning of the 5th (when she had a severe headache) until that of the 8th. I am sorry I did not have an opportunity of examining the urine during the first two or three days, for I was about introducing the catheter on the occasion of her being first placed under chloroform, when the sphincter gave way and all the urine escaped, and for the next two or three days it kept dribbling away. She had no sign of lactation. On Jan. 16th, 1870, I met her in the street, carrying her baby. They both looked hearty and well.

This case is interesting at the present time owing to the diversity of opinion which exists as to whether we ought to bleed in these cases. On the one hand, we find Drs. Churchill, Johnson and Sinclair, Ramsbotham, Tyler Smith, and others, all strongly recommending bleeding. In fact, one of them says: "Bleeding is our great reliance; the lancet is our sheet anchor; and blood may be taken to a large extent." On the other hand, we have the late Sir J. Simpson, Dr. Braun of Vienna, Dr. Barnes, Dr. Tanner, &c., all equally averse to bleeding. Dr. Tanner, in his last work on "Diseases of Pregnancy," says: "I have no hesitation in expressing a decided belief that bloodletting, as a general rule, without exerting any valuable effect on the symptoms, is calculated to produce irreparable mischief."

Since writing the above I have read in the last volume of "Guy's Hospital Reports" a paper by Dr. Phillips, in which he relates an interesting series of cases all treated without bleeding.

A CASE OF RETROVERSION OF GRAVID UTERUS.

I was sent for on Oct. 5th, 1870, at 11 P.M., to see Mary Ann C——, aged twenty, who had been admitted into the lying-in ward of the Brighton Workhouse. She had been sent in during the early part of the day by a surgeon, who had certified that she was in labour. On examination, I ascertained that she was six months pregnant with her first child, and the midwife, who had been with her all day hourly expecting her to be confined, told me the patient had been in strong labour all day. At the outlet of the vagina I found a tumour presenting about the size of a child's head, being partly inside and partly out; it felt very much like the fœtal head enveloped in a muscular covering. At first I was troubled to find the os uteri, but on firmly pressing the tumour back with one hand, and inserting the forefinger of the other well up behind the pubes, I could just reach the os, which at once told me I had got a case of retroversion. On examination per rectum I was confirmed in my diagnosis, as I found the gravid uterus pressing firmly upon the lower gut. A large tumour was to be felt in the abdomen, which, on introducing a catheter (this was done with much difficulty) and emptying the bladder, entirely disappeared. As I could not then reduce the retroversion, I left her, and on my visit next morning found her bladder again distended, and, after repeated trials, I was quite unable to introduce a catheter. During the day I procured Barnes's bags for dilatation of the uterus, and on my evening visit, finding I could not reduce the retroversion nor empty the bladder, I inserted the largest one into the rectum, and dilated it. This improved the state of affairs a little, for a rush of urine occurred which relieved the bladder somewhat, but a violent expulsive pain coming on forced the bag out of the bowel. Seeing that the sphincter was very dilatable, and the patient being under chloroform, I introduced my hand (a small one) into the rectum, and immediately afterwards had the satisfaction of finding the uterus with its contents ascend into the abdomen. I then had no difficulty in evacuating the bladder. I gave her twenty minims of nepenthe and left her for the night. On my visit next morning I found she had passed a fair night, but could not retain her water. I then ordered her thirty grains of hydrate of chloral, to be taken at bedtime. In about two hours after she had taken it she woke up suddenly and aborted, before the midwife, who slept close to her, could get to her assistance. Query: Had the chloral any connexion with the abortion?

The fœtus I have in my possession, and it has the appearance of being of at least six months' growth. She made a good recovery. On examination a month afterwards, I found the uterus still retroverted, so that I think this must be the normal condition of the organ with her.

This young woman was a most refractory patient; for, although she was in so much pain, I had on each visit to put her under the influence of chloroform prior to making any attempt at reduction of the retroversion.

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ON THE ORIGIN OF CANCER.

By CAMPBELL DE MORGAN, F.R.S.,

Surgeon to the Middlesex Hospital.

(*Concluded from October No.—p.* 526.)

WE may now pass on to the consideration of the inheritability of cancer. From careful inquiry into the family history of private patients, I am, as I before mentioned, inclined to consider the disease as more frequently hereditary than does Mr. Paget. The family histories of hospital patients are not, as a rule, so readily obtained. This would by some be thought to establish the point I have been arguing against. But it does not touch the question one way or the other, or, if anything, shows that cancer obeys the general laws of development. Every point in our conformation, mental or bodily, is, or may be, inherited—disease no less than natural condition. Seeing how frequently the peculiarities of the parents or grandparents are repeated in the descendants, it can be no matter of surprise that their diseases should be transmitted as well. In the case of innocent tumours, surgeons do not, perhaps, make inquiry into the family history of their patient. They will find, if they do, that there is quite as strong a tendency to hereditary transmission of such tumours as lipoma or atheroma as there is of cancer. I may mention a few such, and some of them tend to indicate what I have long suspected, that where a disposition to aberrant growth is transmitted it may show itself in the formation of tumour of a different nature from that seen in the parent.

A woman came under my care at the Middlesex Hospital for cancer of the uterus. She had as well numerous lumps under the skin, apparently fatty; they were movable and painless. There were eighteen in the left arm, and fourteen in the right. There was one in the left hip. The largest was about the size of a small walnut. She was sixty-three years old; and these tumours had appeared when she was sixteen. Her sister, aged sixty-seven, has numerous subcutaneous but tender tumours in the left arm—more than twenty in number,—four or five in the right arm, one in the abdomen, and one in the hip. She has had them for twenty years. The father had had two large movable tumours in the left arm.

Dr. Murchison* mentions a case in which a father and two daughters had been the subjects of fatty tumours.

A gentleman recently consulted me about several tumours which had been developing for years. There was a large one in each buttock, one on the right arm, three on the left, and one in the left palm; they were as hard as cartilage, and movable. His father had had several atheromatous tumours removed from his head. Two of his brothers had had the same, and he himself had some coming forward. His grandfather's cousin had been subject to these head tumours, so that probably the tendency had been inherited from the great-grandparent.

I saw about the same time a gentleman with atheromatous tumours in the head and a large fatty tumour in the back. His father had had a number of tumours removed from the head.

Shortly afterwards another gentleman showed me a cluster of these tumours on the head, and on inquiry I found that his father had had several similar ones removed.

These three last cases occurred to me within a fortnight. I have noted many others in which the parent or some near relatives of those who have had simple tumours have been subject to some form of tumour. The tendency to warts, e.g., is frequently hereditary. We should expect this, knowing that the tendency to disease or peculiarity, gout, rheumatism, insanity, deaf-mutism, early baldness, stammering, and many others, are constantly inherited. Now, if we take the case of atheroma or fatty tumour, for example, we find that, though the individual is born with a tendency to abnormal developments, the tendency remains for years dormant and inoperative, and that then the change, purely local in its nature, first manifests itself. We have no proof here that cancer, which is equally hereditary, may not depend on the development of a blood-poison; but neither is any proof afforded that it may not be as purely local. Some of the cases, indeed, show that we might expect a tendency to cancerous outgrowths in more than one situation, even though the disease were purely local. Experience, however, leads to a different conclusion, since we never find secondary outgrowths of cancer in situations which are the ordinary seats of the primary disease.

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* Edinburgh Medical Journal, 1857.

With regard to the general contamination of the system by cancer—the cancerous cachexia,—this, as has been said, is not a primary condition: it does not occur until the disease has made considerable advance; it may not occur at all. Cases are numerous of patients having open cancer for years without any appearance of being the subjects of serious disease: they neither lose flesh nor appetite. Again, patients often die from unulcerated cancer, especially of the internal organs; wasting away and becoming exhausted, without showing the characters of the cancerous cachexia. But they also die in the same way from the internal development of enchondroma and fibro-plastic disease. It is in the cases of ulcerated cancer that we see this cachexia most strongly marked. And, no doubt, in these cases the whole of the fluids of the body become contaminated; the continual absorption of so foul a discharge as is there present would quite account for this. We know that the continual discharge from an unhealthy ulcer or a foul abscess will induce destructive poisoning of the system; and we can readily conceive that the discharge from a cancerous ulcer will be far more poisonous, and vitiate the blood to a greater degree and possibly in a special manner. All that can be shown at the most is, that when cancer is formed, and has grown to a certain extent, it may become a source of contamination to the system; but it does not afford the slightest confirmation to the view that the primary seat of cancer is in the blood. Nay, it is evident that this cancerous cachexia must be something very different from any supposed blood-condition which precedes or accompanies the earlier stages of the disease. For, as we have seen, the cancer may exist for years, and no cachexia manifest itself; but if the cachexia once appear death within a short time is inevitable. It is quite clear, then, that this vitiated state of the blood, and indeed we may say of all the tissues of the body, is in no sense or at any time the cause of the primary development of cancer, but is always the result of the advanced progress of the disease in time or extent. As a rule, we do not find any special tendency to new growths, even though the system is poisoned by this absorption of effete cancer elements. The expectation of finding this cachexia, as a diagnostic sign of the disease, is fraught with the most serious evil.

There is yet one point in relation to the dissemination of cancer which is, I confess, inexplicable, and which seems, at first sight, to favor the view that, in its secondary stages at least, the disease may be propagated by means of a poisoned state of blood. This is, the remarkable manner in which it may pervade a large part of the osseous system. I do not know that it affects the question of primary blood-poisoning, for I am not aware of any cases in which the peculiar state I allude to has not been secondary, and associated with cachexia. The cases I especially allude to are not those common ones of cancerous tumour of one or more of the bones, causing their fracture. These may be accounted for in the same way as we might account for similar tumours in the muscles, or any other tissues. But we do sometimes get a cancerous wasting of some of the bones, accompanied often by deposits of cancer in other parts of the skeleton. It corresponds, I imagine, with that condition to which Lobstein has given the name of osteolyosis, though different in some respects. A case—of which a preparation is in the museum of the Middlesex Hospital—affords a striking instance. The patient had cancer of the breast. Latterly she complained of pains in the back. It was noticed that the trunk was becoming much shortened, but there was no tumour to be detected. After death it was found that some of the vertebræ had so completely disappeared that the intervertebral substance of the adjoining vertebræ, quite unaltered in character, had come into apposition. Others had partially wasted, but there was no deposit in or around them. The sternum and ribs also were the seats of cancerous deposit, while the cranial bones were studded with cancer nodules, which seemed to have their primary seat in the diploe. I have seen one or two instances of the same condition in a minor degree. The softening of the pelvic bones is very common in the latter stages of cancer, and to it may perhaps be attributed those pains which so often usher in the cancerous cachexia, and which somewhat resemble sciatica. There is no doubt that the cancellous structure of bone is often thus the seat of cancerous and other deposit, and of cancerous degeneration. Dr. Moxon showed at the Pathological Society, for example, a very interesting specimen of general colloid cancer of the skeleton, in parts running into the character of sarcoma. The peculiar character of the medulla seems to point to it as a tissue very likely to run into these morbid conditions. The pathology of the wasting of the bone in cancer is yet to be made out. With regard to the especial predilection which is at times seen in diffused cancerous disease of bone, it may be in obedience to some such conditions as determine the formation of neuromata, of which over a hundred have been seen in the same subject, or of the cartilaginous growths on the fingers, or of the multiple exostoses which sometimes exist.

The general conclusion at which I should arrive is, that in some persons, and in some parts, there is a tendency, local in its origin, to the formation of tumours. That this tendency may in some have been implanted in the tissue, even in its embryonic condition, though the actual development may not take place till years after birth; in others, although there may be a disposition to morbid growth, the actual tumour will not be developed unless under some irritation. That the morbid growth having once taken place, it will remain localised, or become diffused in proportion to the facility with which its elements can be taken up and carried off by the structures amongst which it lies. That the period during which these elements may remain dormant is indefinite. That, save in degree, there is no real difference between the malignancy of cancer and that of some other forms of tumour, and that even the line between malignant and non-malignant growth is not clearly defined.

I should place cancer, then, at the top of a scale, at the lowest point of which might be placed the simplest forms of outgrowth identical in structure to the parts amongst which, or from which, they grow. In all cases I should regard the morbid product as the result of undirected or ill-directed growth force, the elements of the structure thus formed possessing, as the natural elements do, the tendency to reproduce their like. Consequently, I should consider that a special condition of blood had no more to do with the formation of a cancer than it had to do with a lipoma or an adenoid.

It may be asked, what is practically gained supposing these views are established? Little or nothing, I admit, with our present knowledge, except this, that we should know the direction in which we should work. In the first place, it is clear that if removal be the practice adopted—and I believe that in all fair cases it is the proper one—the earlier the operation is done the better. This I consider a positive rule. It is true that very early operations are often very unsuccessful, and late ones very successful. But the tumour itself will often tell us why. I have removed tumours from the breast when small, and only just discovered, and have found them highly vascular and juicy, and the tissue around containing minute dark specks of cancer. Such tumours would be very likely to return. Others, which have existed a long time, are hard, circumscribed, contracted, with no glandular infection. In such cases the most satisfactory results might be expected from operation, provided always the operation is widely performed. In cases like those first mentioned the operation might be successful, if the parts around were as extensively removed as they would be in the case of a large tumour existing. I believe I may state from my own experience that the most successful results of removal have followed early and wide operations. Even when the axillary glands are affected, and are removed freely, the patients have lived for many years without return of the disease, as they will at times when enlarged glands are left untouched. And I have no doubt that the use of agents which coagulate the albumen to some depth, and at the same time, or in consequence, act as antiseptics, are beneficial. I still use the chloride of zinc, as I know of none which fulfils these conditions better.

The hypothesis of the local nature of cancer precludes the notion of general treatment with a view to alter the condition which produces it. I do not doubt that by general as by local means an impression may be made at times on the rate of progress; but I am quite sure that no system of internal or external treatment hitherto discovered has the slightest *special* effect. And I do not say this without experience; for, in the hopeless state we are in with regard to the treatment of the disease, I have felt it my duty to try many of the remedies which have from time to time been lauded. They have all done good in one way: they have made the patient hopeful for a time, and that is something. But, so far as any real effect on the disease was concerned, pump-water would have been as useful. One mode of treatment has occurred to me; but I have not had the courage to try it, because I could not answer for the results. They might be unfavorable. Cancer is for the most part, and at its commencement, a disease of the healthy and well nourished. As a rule, I believe that it is best in the early stages rather to keep the patient on a restricted diet than to encourage them to take largely of food and stimulants. They have less pain; and the tumour is, I believe, less active. Could the disease be starved out? Many years ago a gentleman of strong health and iron will told me that he suffered severely from hæmorrhoids. He disliked the idea of operation; and was told by his medical man that if he would starve himself he might obtain a cure. For weeks he kept himself at starvation-point, or nearly so, and the tumours all became absorbed; nor has he been troubled with them since. Hæmorrhoids are not cancers; but the example shows that when the body is feeding on itself it does not spare adventitious growths. One of the most distinguished in this country, since dead, told me that his wife had had cancer of the uterus. He kept her for a length of time on the sparest vegetable diet—just enough to keep body and soul together. The disease disappeared. Years after the cancer reappeared, and destroyed her; but they were then living separate. May the antagonism occasionally observed between tuberculosis and cancer be dependent on the fact that tuberculosis is associated with waste of tissue? These are the slightest possible grounds on which to suggest a mode of treatment which might prove injurious instead of beneficial. Still I should like to see the experiment tried. It might be made in the case of melanosis in the horse, though I do not know whether that is a true cancer. Still the effect on an abnormal recurrent growth would be worth noting. In order to be efficient it must be tried in a healthy animal, before any general effect on the system is produced by the disease.

Seymour-street, June, 1871.

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A CASE OF POISONING BY PHOSPHORUS.

By W. Anderson, M.D.

A very healthy female child, aged one year and eight months, had sucked the heads off about twenty matches before it was detected, on Saturday evening, July 8th. Next day it presented no particular symptoms. The mother gave her a dose of castor oil, which operated freely. On Monday evening she seemed drowsy and fell asleep, in which state she continued for twenty hours with scarcely any intermission. On Tuesday the father came for advice, and the following mixture was ordered:—Oil of turpentine, one drachm; acacia mixture, half an ounce; cinnamon-water to two ounces: half a drachm to be taken every four hours, and plenty of milk. On Wednesday it vomited, and was feverish and weak during the day. The mother thought it was teething. When visited on the same evening, the skin was hot, the pulse rather quick, tongue dry and parched, child very restless and constantly wanting drink, and the extremities were cold. She was ordered a powder composed of calomel and James's powder, a grain and a half of each; a mustard footbath, and mucilaginous drinks. After this the child rallied. On Thursday morning an attack of vomiting came on; the slightest pressure on the epigastrium producing great pain. Repeat powder and hot stupes and cataplasms to stomach. A slimy motion was passed. Towards evening she grew gradually weaker: the extremities were cold, and there was persistent vomiting of matter like coffee-grounds. When seen later in the evening she was almost pulseless; cried loudly in bursts; was unconscious; and passed involuntary motions of a dark color, apparently containing coagulated blood. A distinct alliaceous odor was given off from the breath. The child writhed convulsively, and was evidently suffering great pain in the epigastric region. She had fits of vomiting of coffee-ground type. The extremities were cold, and the whole body was of an icteric tint. She seemed moribund; but after giving her a draught of saccharated solution of lime and tincture of opium (three drops) in some brandy at intervals, the vomiting was checked and the little sufferer seemed much relieved. Hot opiate stupes were applied constantly to the abdomen, and hot jars to the feet. In spite, however, of the administration of brandy, beef-tea, &c., the little patient gradually sank until her death at 8 A.M. on Friday, being the seventh day since she had sucked the matches.

The child had never been ill before, but was a remarkably fine, well-nourished child.

An examination of the body was made at 5 o'clock on Friday evening. There was no rigor mortis. There was marked general ecchymosis, and the body presented a decided icteric tint. Lungs and heart healthy. The heart contained little blood, except in the right auricle, which was filled with dark blood in a semi-coagulated state. The kidneys and spleen were normal on section. The liver was larger than normal, of a decided yellow hue, and had all the appearances of commencing fatty degeneration. From the circumstances of the case, the autopsy was not so complete as could be wished. The brain was not allowed to be examined. On opening the stomach, a distinct alliaceous odor was evolved. The gastric mucous membrane was highly injected, no perforations discernible, and it was filled with a dark grumous fluid. The intestinal tract was lined with a catarrhal mucus, but was not inflamed, except the ileum, which was highly congested, especially the patches of Peyer, which were much inflamed, and also the ileocæcal valve. Turpentine was given in accordance with a communication which I had noted down from one of the medical journals, and which I here subjoin—viz.: "Commercial oil of turpentine is a good antidote to phosphorus; there is no fatty degeneration of the tissues, nor is there any free phosphorus found in the system of the animals experimented on. Phosphorus and turpentine form in the stomach a compound resembling spermaceti, which is really excreted." I failed to detect phosphorus in substance in the contents of the stomach by Mitscherlich's process; whether this was owing to the turpentine I cannot determine. The contents were not luminous in the dark; however, on acidulating a portion of the contents of the stomach with nitric acid, and adding a few drops of the solution of the ammonio-nitrate of silver, a distinct yellow precipitate of phosphate of silver was thrown down. I found the matches to be composed of phosphorus, chlorate of potash, glue, and coloring matters. The administration of the castor oil by the mother was unfortunate, as it doubtless accelerated the action of the poison by rendering it more soluble.

The history of the case and the fatal result correspond with the majority of the cases of phosphorus poisoning as detailed by Schraube in his exhaustive treatise.

For the notes of the above interesting case I am indebted to Dr. R. A. K. Holmes, who also devoted much attention to the little patient.

Richmond, Surrey, July, 1871.

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TWO CASES OF HYDROPHOBIA TREATED BY HYDRATE OF CHLORAL.

By Henry W. T. Ellis, M.R.C.S. Eng., L.R.C.P. Edin.

On the 18th of April I was sent for to visit Albert P——, aged seven years, who three weeks previously had been bitten in the face by a stray dog, one of the bites involving the inner canthus and conjunctiva of the right eye. I was told he had complained the day before of being poorly. His parents, however, looked upon the attack as a slight febrile one from cold, and took no further notice than to give him an aperient. His anxious and frightened expression of countenance powerfully impressed me; and upon finding he dreaded the sight of any fluid, and could not be got to swallow it, the fact was quite evident that I had to deal with a case of rabies,—this characteristic symptom, denoting an affection of the œsophageal branch of the eighth pair, being so well marked. His pulse was quick; tongue covered with white fur; he was restless and fidgety, refused food as well as drink, and on making the attempt to get him to swallow a little tea the effort brought on a violent spasmodic constriction of the throat; even the sight of the cup excited agitation and aversion, but he did not complain of much pain in the bitten parts. Knowing the inefficiency of all treatment in this frightful disease, I determined upon trying the hydrate of chloral, at any rate with the hope that it would in some measure control the excitement and violence that in another stage might be expected to follow; and in this I am happy to say I was not disappointed, for it certainly mitigated those symptoms in a remarkable degree. The remedy was administered in doses of a teaspoonful of the syrup, diluted with a little water, every two hours, and subsequently every hour, considerable difficulty being of course experienced in the effort to swallow, but it is believed most of it was eventually got into the stomach. As regards progress, the disease, however, went on unchecked. On the second day the sense of touch was most painfully excited by the slightest application of the finger to the face; even when the spoon came in contact with the lips there was a catch in the respiration, denoting, I presume, an affection of the recurrent nerve; the pupils became dilated; tongue more thickly coated. There was a continual desire to be walking about, evidently showing that the lungs then were not much oppressed. On the third day the little sufferer talked almost incessantly, often incoherently, but there was little tendency to violence or vicious impulse. The hydrophobic saliva, thick and tenacious, began to accumulate, and, when not got rid of by spitting, occasional vomiting took place, which afforded relief for a brief period. He, however, gradually got weaker, and unable to eject it, sinking from apnœa at 4 A.M. on the fourth day after the characteristic symptom developed itself.

The other case, to which I was called on the following day, was in a little girl, Alice Mary M——, aged five years, bitten at the same time in various parts of the head and face. The symptoms and treatment were nearly indentical; but on the third day, at 2 P.M., there was for a short time some violence, controlled, however, entirely by the chloral hydrate, the administration of which had been rather neglected. During this period the poor little creature screamed loudly, requiring some restraint, and saying her parents were killing her. Saliva then began to collect, and was either ejected or ran out of the corner of her mouth. A period of perfect calm then came on, and continued until her death, in my presence, at 7 P.M. the same evening, sinking apparently more from asthenia than apnœa.

The history of both these painful cases, pointing, as it forcibly does, to an affection of the central and spinal nerves, the brain, and especially the medulla oblongata, makes it quite clear to my mind (and I devoted much time and attention to them) that the agonising sufferings of the subjects of this horrible disease were considerably alleviated by the means employed; and, although unsuccessful in warding off a fatal result, it was satisfactory to find that the friends of the poor little sufferers fully appreciated the beneficial effects of the remedy used.

Crowle Hall, Doncaster, May, 1871.

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CASE OF

REMARKABLE PRESENTATION OF THE FŒTUS IN UTERO.

By ROBERT ANDERSON, M.D., L.R.C.S. Edin.

THE following case came under my observation on the 25th of May, and presents many remarkable features, it being an instance in which, so far as I am aware, the greatest number of parts of the child presented at one and the same time. I therefore venture to think it may be of interest to the profession.

At 10 P.M. on the 25th of May I was summoned hurriedly to see Mrs. A——, who was in labour with her ninth child. She was being attended by a midwife, who, on finding something abnormal, sent at once for my assistance. She is a woman of very short stature, but with a roomy pelvis. She has had two still-born children previously at the full time, and also two footling presentations, both of which are alive. On my arrival I found she had been in labour since 8 A.M.; but with very light pains. The liquor amnii escaped about 4 P.M., and the pains had almost entirely ceased since then. On attempting to examine per vaginam, I discovered about nine inches of the cord outside the vulva, which I ascertained had existed for two or three hours. It was pulseless. When the finger was introduced into the vagina, I found both feet presenting towards the posterior wall of the vagina; and, on sweeping round to feel the extent of dilatation of the os, I found a hand towards the right wall, and one towards the left. There was also a large, soft, bulging mass in the centre, which, on first thought, I took for the breech; but, on pressing it, I found it to be some part of the head, with a large caput succedaneum. On finding the os fully dilated, I first endeavored to reduce the prolapsed cord; but failing, I seized both feet, and, bringing them down, delivery was easy. The child, of course, was dead; and all attempts at resuscitation were unavailing. The face of the child was delivered under the pubes, but proved no obstruction. An examination of the fœtus showed a caput succedaneum on the forehead, which was thus proved to have been the part of the head presenting, along with the cord, feet, and hands. The mother has progressed rapidly to recovery, and is now almost quite well.

The above case is to me singular as an instance of no fewer than six parts of the fœtus presenting in the vagina at once—viz., the umbilical cord, both feet, both hands, and the forehead. The face coming under the pubic arch was to be looked for when the position of the child in utero is considered. It however proving no hindrance to delivery, a very complicated presentation turned out a case of easy management.

Airdrie, June, 1871.

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FRACTURE OF THE BASE OF THE SKULL; PARALYSIS OF ABDUCENS; RECOVERY.

REPORTED BY

HENRY HADLOW, R.N.,

Surgeon in Charge of the Royal Naval Hospital at Yokohama.

(*Communicated by* THE DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT OF THE NAVY.)

J. C——, able seaman, of H.M.S. *Rinaldo*, on October 26th, 1870, fell from the fore-topmast cross-trees into the foretop, cannoning against a man in his descent, and falling obliquely on the right side of his head. He was picked up unconscious, with blood flowing profusely from the ears, and was at once brought to the Naval Hospital. When received the coma was found not complete; he could be aroused if loudly spoken to; the pupils were dilated, sluggish, but not insensitive to light, and blood was flowing freely from the ears. This flow of blood, and afterwards of blood mixed with yellowish fluid, continued for three days, and ceased on October 29th. On November 2nd he was found to present slight but sufficiently marked internal squint of the left eye. No other cerebral symptom. The squint increased daily. On the 21st of November, the report is, "Looking at an indefinite far point directly before him, there is inversion to the extent of an English line. He cannot evert the eye beyond the centre point or O of the strabismometer; there is lateral diplopia except when looking to the extreme right, and asthenopia."

After this date he began to improve. On December the 14th the inversion had diminished to half a line. He had acquired the power of abduction to the extent of nearly two lines. The sight of the eye was good. He could read No. 20 Jaeger at twenty-two feet, and accomodation was unimpaired, $=\frac{1}{3}$; diplopia continued, except when looking considerably to the right of the middle line. He improved slowly but steadily. A month after the last date, images of objects immediately in front of him were coincident, and he had power of eversion to the extent of more than two lines.

On the 18th of February, abduction could be effected completely, and the only want of parallelism between the optic axes was about twenty degrees to the left of the direct centre. On the 8th of March he was quite well, the optic axes coincident at all angles, and with perfect binocular vision when tested with the stereoscope.

In Holme's "System of Surgery," two cases of paralysis of the sixth nerve alone, following fracture of the skull, are given. One terminated fatally, and the other was operated on for the resulting squint without any good result. A case of complete recovery following this accident appears worthy of being placed on record.

August, 1871.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

LONDON HOSPITAL.

FRACTURE OF OLECRANON IN BOTH ARMS; ONE TRICEPS WASTED AND PARALYSED, THE OTHER OF GOOD STRENGTH; PARTIAL RUPTURE OF TENDO ACHILLIS.

(Under the care of Mr. HUTCHINSON.)

WM. B——, aged twenty-seven, was admitted on account of suppurative inflammation of a subcutaneous bursa over the right elbow following a fall on that part. There was at first some doubt as to whether or not the abscess communicated with the elbow-joint. The fluid was unmistakably synovial; but, as the movements of the elbow remained perfect and could be effected without pain, and the swelling was confined to the back of the joint, Mr. Hutchinson concluded that the synovial fluid came only from a subcutaneous bursa. The case was interesting from the fact that the patient had fractured the olecranon process on each side, and (as he stated) ruptured the tendon of his calf; these accidents had all happened several years before. Ten years before admission he fractured the right olecranon by falling on his elbow from the rigging of a ship, a height of about ten feet. He says that the "bones were separated" immediately after the accident. He went to a doctor and had the arm put up in splints in a straight position. He kept it so for three weeks and then took the splints off, not having seen the doctor again. Since that time he has had no power to lift the arm straight into the air above his head; the forearm falls into extreme flexion as soon as its centre of gravity gets to the proximal side of the elbow.

The triceps of the right arm was found to be wasted and quite flabby; when he tried to straighten the arm that muscle did not act in the least. The upper fragment of the olecranon was separated by at least an inch from the lower one.

Five years later he fractured his left olecranon by a somewhat similar accident, falling about four feet. He thought that the bones were separated as widely in this instance as in the first accident. It was kept straight in splints for six weeks, after which time he soon regained perfect use of the arm. The upper fragment was found to be movable on firm pressure, but he had perfect use of his triceps, and this muscle was apparently quite strong. The fracture appeared to have been oblique, and there was strong fibrous union.

He met with a third accident, in which he probably ruptured the tendo Achillis on the right side, about eighteen months ago. He jumped off a table, and on alighting felt as if something had struck his right calf. On examining it he found a little "dent," into which he could put his finger. He could not walk by himself, but could limp along with help. He rested in bed for a fortnight, and had the leg bandaged, but no pains were taken to extend the foot. After this treatment the "dent" had disappeared, and he found himself able to walk as well as on admission. There was found, on careful examination, a slight swelling at the junction of the lower and middle thirds of the calf, or perhaps rather higher than that point. On this swelling being pressed, the patient complained of pain. No such swelling could be felt in the opposite calf at the corresponding part.

The right calf measured about half an inch less in circumference than the left. The wasting was quite perceptible to the touch, and seemed to involve chiefly the inner part of the gastrocnemius, for when he put the calf muscles into action it was that part which remained flabby, while apparently the soleus could be felt to act beneath it. Possibly the rupture had involved only the tendon of the gastrocnemius before its junction with the soleus. The calf of this leg was considerably weaker than that of the other, so that he could not stand on tiptoe on the corresponding foot. He always limped with the left foot.

In commenting on this case, Mr. Hutchinson observed that no cause was assignable for the occurrence of these injuries. The man appeared to be in robust health in every respect. He had never had fracture of other bones. The case illustrated the common result after fracture of the olecranon—non-union of the bone. In one instance the uniting medium was strong, close, and fibrous; in the other it allowed of wide separation, the end of the bone being pulled up behind the joint. No doubt this difference of result was in large measure due to the too early use of the right limb, and to neglect of proper precautions in the treatment. It was not, he thought, usually difficult to secure close union after these fractures, although very difficult to get actual bone. In the left arm, the close, fibrous union had rendered the bone almost perfect as regards its uses; the triceps had not atrophied, and the man could use it well. Probably the fracture was oblique, for in the extended position the fragment became fixed, and no motion could be detected.

It was also of interest to notice that absolute atrophy of the triceps on the right side by no means disabled the arm. In this respect the case was parallel to what happens after atrophy of the quadriceps extensor of the thigh. The man asserted that he could use his arm well for everything that did not require him to lift it straight up in the extended position, and he followed a laborious occupation without discomfort. The reason why a muscle should atrophy in consequence of non-union of the bone into which it is inserted, was, Mr. Hutchinson observed, not quite obvious; but he had repeatedly noticed this result to follow badly united fractures of the patella, and sometimes very good ones. He had never before noticed it after ununited fracture of the olecranon.

TWO CASES OF PNEUMOTHORAX TREATED BY ASPIRATION.

(Under the care of Dr. RAMSKILL.)

The subjoined notes have been furnished us by Mr. Stephen Mackenzie, resident medical officer.

The following two cases are of interest as showing the great value of the pneumatic aspirator in the treatment of pneumothorax. In the first case the patient was immediately rescued by the operation from a condition of great suffering and danger, and placed in ease and safety from which there was no relapse. In the second, from the nature of the disease causing the pneumothorax, cure was impossible; but the distressing dyspnœa was removed, and the passage from life made easy.

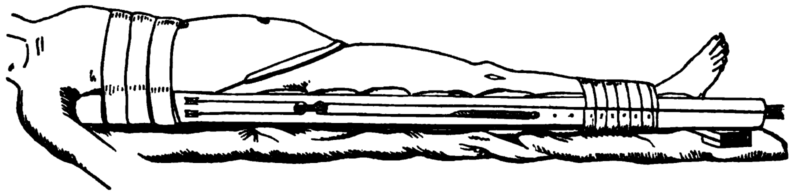
There appears to be no drawback to the operation, which in itself is exceedingly trivial and painless. Its good effects are immediate. There was recently in the hospital, under Dr. Ramskill's care, a case of hydro-pneumothorax of some standing. This was treated by puncture with an ordinary trocar and canula, and a drainage-tube was left in. Unfortunately, the operation was followed by extravasation of air into the cellular tissue around the wound and, ultimately, into the whole subcutaneous cellular tissue, causing the death of the patient. In the first of the following cases there was at the time of the operation slight extravasation of air into the cellular tissue around the wound, which is attributed to an accident in the operation. Owing to the puncture being so small, the orifice closed in the course of an hour or two, and no further escape took place. What little air there was in the cellular tissue was absorbed in the course of the next day. In the second case there was no surgical emphysema whatever. The only precautions necessary in the operation are: first, to pass the needle in horizontally in the centre of the intercostal space so as to avoid the ribs, for the cases in which surgical emphysema has followed have been those in which the needle has glanced off the rib into the cellular tissue; and, secondly, only to pass the needle sufficiently far to reach the air in the pleural cavity, for if the needle project far into the pleural cavity, when the lung expands the visceral layer of the pleura comes in contact with it, and considerable pain is caused. The first case, from its interest, is detailed at some length.

Pneumothorax, probably from Rupture of an Emphysematous Air-vesicle; aspiration; recovery.—Henry W——, aged fifty, had been subject for many years to cough and shortness of breath, both of which had become worse year by year. On the morning of admission he felt as well as usual, except for a slight pain in the right side of his chest. In the middle of the day he went out of doors on business, and whilst walking in the street felt all at once that he could not get a breath, had great pain in the chest, and staggered so that he had to be supported. This took place just outside the hospital, and he was immediately carried in. The messenger who fetched Mr. Mackenzie said that the man was so ill that it was doubtful whether he would be alive when he reached him. He was found livid and gasping for breath, but as the dyspnœa was said to be slightly less than it had been a few minutes previously, some hot brandy-and-water was given him, and he was ordered to remain in the receiving-room for half an hour, and then be carried into a ward. When seen later in the day, he was suffering from extreme dyspnœa and sat with his arms and shoulders raised, but was not so livid as when first seen. The nurse said his breathing had been even worse than it then was, and she had thought that he was going to die. When his shirt was taken off it was found that the breathing was exceedingly labored, and that there was great recession of the intercostal spaces and epigastrium at each inspiration. On percussing the right front of chest, the resonance was found to be tympanitic from the second rib to the lower margin posteriorly; it was tympanitic from the root of the lung downwards. The respiration was amphoric over the tympanitic portion, and accompanied by metallic tinkling. The liver was pushed down entirely below the ribs. The left lung was highly emphysematous, and respiration was accompanied by sibilant and sonorous râles. The heart was beating with great rapidity.

It was concluded from the history and physical signs, that the pneumothorax was in all probability the result of the rupture of an emphysematous air-vesicle, and it was at once decided to remove the air from the pleural cavity by the pneumatic aspirator. The smallest needle of the instrument was employed, and this was introduced at the ninth intercostal space, close to the angles of the ribs. At the first attempt the needle glanced off one of the ribs, and appeared beneath the skin. At the second attempt it entered the pleural cavity, and air rushed into the body of the syringe. The air was pumped out until no more would come, and it was then found that between sixty and seventy ounces, by measure, had been evacuated. On listening now to the chest it was found that there was no longer any amphoric breathing, and by percussing it was found that the liver had ascended slightly into the thorax. A little air was perceived in the cellular tissue, around the seat of puncture, but this excited no alarm, and no compress or other application was placed over the spot. The patient experienced the greatest relief from the moment that one or two syringefuls of air were drawn off, and, at the end of the operation, was able to take a full breath, and to lie down with ease. There was no pain or other discomfort. Half a grain of morphia was administered, and the patient was directed to lie on his right side, and resist all inclination to cough.

On the following morning it was found that he had slept all through the night; he was in no pain, and his breathing was quite comfortable. There was less air in the cellular tissue of the back than on the previous evening, and there was no elevation of temperature. The air in the cellular tissue of the back had disappeared by the evening. For the next week he was kept lying as far as possible on his right side, and took a third of a grain of morphia three times a day, to prevent coughing. There was no reaccumulation of air whatever in the pleural cavity. At the end of a week he got up. He was troubled with some bronchitis, and emphysema of both lungs, which were habitual to him, and which were much relieved by appropriate treatment. He left the hospital for the country three weeks from the time of his admission, feeling better than he had been for months.

Pneumothorax in a phthisical patient; aspiration; great relief.—Ellen S——, aged twenty-eight, was admitted with very acute broncho-pneumonic phthisis. On the evening of admission her pulse was 150, respiration 44, temperature 105°. Her breathing was very difficult from the first, but after she had been in the hospital about ten days, it was found that she could only rest with her body bent double, her chest resting on a pillow placed in front of her. She could lie in no other position. This attracted attention, and on examination it was discovered that there was a large quantity of air in the left pleural cavity. The smallest needle of the aspirator was introduced between two of the lower ribs posteriorly, and 74 oz. (by measure) of air were drawn off. The relief was instantaneous, and she was at once able to lie in the recumbent position. She died a week later. There was slight reaccumulation of air in the pleural cavity a day or so before her death, but it was not sufficient to cause any great distress.



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ST. BARTHOLOMEW'S HOSPITAL.

TWO CASES OF POPLITEAL ANEURISM TREATED BY LIGATURE OF THE FEMORAL ARTERY.

(Under the care of Mr. Savory.)

We are indebted to Mr. P. Butler Stoney, house-surgeon, for the particulars of the following two cases.

Phineas Y——, aged thirty-three, a surgical instrument maker, felt pain in, and stiffness of, the right knee, about six weeks before admission. As the pain became less, a swelling appeared at the posterior part of the joint, and steadily increased in size. On admission, an oval pulsating tumour, of about the size of a small melon, was found to occupy the right popliteal space. Pulsation, uniform throughout the tumour, was distinctly appreciable to the eye and touch. The posterior tibial artery pulsated at the ankle; the radials were not tortuous; the heart-sounds were normal; there was no arcus senilis, nor œdema of the leg or foot. The general health was good. The patient complained of neuralgic pains in the leg and foot. After division of a thick layer of subcutaneous fat, the femoral artery was ligatured at the apex of Scarpa's triangle. The edges of the wound were brought together with silver sutures; it was dressed with carbolised lint, and the limb was wrapped in cotton wool, bandaged, and flexed. On the morning following, the patient had a rigor, and suffered some nausea; but these symptoms were followed by no unfavorable result. On the third day the temperature of the bandaged limb was 99° F.—two degrees higher than that of the sound one. The ligature came away on the eighth day. On the forty-third day the patient was moving about the ward. A slight discharge oozed from the wound. The tumour had undergone a very marked diminution in size, and presented no return of pulsation.

George N——, aged forty-nine, had observed a swelling behind the left knee four months before admission. It gave him no pain or inconvenience for some time, but, with certain intervals of partial subsidence after rest, continued to increase steadily. During the last four weeks he had lost flesh and strength to such an extent as to be unfit for work. The tumour was found, on admission, to be of about the size of a hen's egg, fusiform in shape, distinctly circumscribed, and subject to a strong expansive pulsation following perceptibly after the pulse beat of the femoral artery. The cardiac and pulmonary sounds were normal; the radial arteries slightly, and the temporal arteries very tortuous; an incipient arcus senilis was to be observed. The femoral artery was tied in Scarpa's triangle with a hempen ligature, and the wound was dressed with carbolised lint after the edges had been brought together with silver sutures. The limb was enveloped in cotton wool, and bandaged. A quinine draught was ordered to be taken twice a day, and castor oil to be taken at intervals to counteract a tendency to constipation. On the second day there was some sickness. Three of the sutures were removed on the third day, and the remainder on the fifth. The ligature was removed on the twentieth day. The patient made a good recovery, with marked diminution in the size of the tumour.

EXTENSION OF FRACTURED THIGHS BY MEANS OF AN ELASTIC SPRING.

The above woodcut shows how the above principle is at present applied at St. Bartholomew's Hospital by means of an instrument designed by Mr. Cripps, one of the dressers. An ordinary long splint is provided with a pair of pully wheels near the upper part, a single one at the opposite extremity, and a row of pegs on the lower half of the outer aspect for the attachment of the spring and the regulation of the degree of tension. The extremities of the perineal band are attached to the ends of a doubled string, which plays over one wheel of the double pulley and passes to its attachments over the two upper wheels in the splint. Another string is attached to one end of the spring, passed over the other wheel of the double pulley, and then over the wheel at the lower extremity of the splint, where it is fastened to a stirrup which has been adapted to the patient's ankle. Thus the elastic tension of the spring is brought to bear in an opposite direction upon the two extremities of the limb. The contrivance seldom needs readjustment, and, when it does, the object is readily effected by moving the spring from one peg to another. Three fractured thighs have been treated by its aid at St. Bartholomew's Hospital, and in each instance union has been effected without shortening.

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WEST LONDON HOSPITAL.

ACUTE LARYNGITIS; TRACHEOTOMY; RECOVERY.

(Under the care of Dr. ROGERS.)

FOR the notes of the two cases subjoined we are indebted to Mr. Harrison, the house-surgeon.

Although in the following case it was stated that one of the patient's children was liable to a rash on the nates which came and went, Dr. Rogers was of opinion that the laryngeal affection was not due to syphilitic poison; on the contrary, he attributed it to the fact of her being subject to great and frequent atmospheric changes in the course of her occupation as a laundress. He thinks that the laryngeal mucous membrane was thickened, that a proportion of the thickening was due to a condition which had become permanently established, and that the cartilages and membrane were quite free from specific ulceration. He therefore discouraged the use of iodide of potassium, and confined his plan of treatment to careful attention to the condition of the tube, and the administration of good food.

The patient was a married woman, twenty-three years of age, the mother of two healthy children. Her family appeared to be healthy. She had caught cold twelve months since, and attended for three months with aphonia at St. George's Hospital. Her general health improved; but her voice did not return. She continued at work until two days before her admission, which occurred about 2 P.M. on the 10th of June.

On admission she was suffering from spasmodic dyspnœa. Her features were pale and drawn, and the face was covered with perspiration. She complained of pain and constriction over the larynx, and could only speak in a whisper. There was a husky, convulsive cough, with expectoration of offensive mucus. The pulse was 134 and weak; the tongue furred. She was ordered a grain of opium and one-sixth of a grain of tartarated antimony every four hours, and warm flannels to the throat. In about half an hour she derived some relief from vomiting nearly two ounces of mucopurulent matter.

Five hours after admission she was ordered an emetic of sulphate of zinc; to be repeated if necessary. Two hours later there was more dyspnœa, with convulsive cough and inability to swallow; the pulse 140, and very feeble. About ten hours after admission she was found to be in a semi-recumbent posture, with livid face and lips, anxious countenance, suffused eyes, and œdematous throat. On the trachea being opened, under chloroform, by Mr. Harrison, a large quantity of stringy and most offensive mucus was ejected. The relief was immediate, but for four hours there was great difficulty in keeping the tube pervious, and the breathing was carried on by jerks, which followed each other at long intervals. At the end of this time it became tranquil. Though at first spasms occurred occasionally, and large quantities of the same offensive mucus poured from the tube, the patient passed good nights, and steadily improved. The voice remained somewhat husky; but on the twenty-first day the wound had almost entirely closed, and the patient went into the country for change of air.

PERFORATING ULCER OF THE DUODENUM.

Dr. Rogers points out that the patient had not suffered constant pain for more than fourteen days, and that the amount of dyspepsia could have afforded no early indication of the existence of ulceration. He suggests that in all similar cases, on the first appearance of coffee-ground ejecta, or on the occurrence of great reluctance to take food, it would be well to administer frequent nutrient enemata, and to restrict drug-treatment to the hypodermic injection of morphia, in order to afford an undisturbed opportunity for reparative effort.

W. C——, aged fifty-six, a bootmaker, and a well-built man, was admitted with severe abdominal pain, most acute in the epigastric region. He had felt this pain, which had been accompanied by occasional vomiting of dark-colored fluid, for about a fortnight. He continued, however, to work at his business, but scarcely dared to touch his meals.

On the day of admission he was suddenly seized in the street with severe spasm across the stomach, and fell to the ground. He was brought to the hospital by the police. As he was being carried in he vomited a large quantity of dark coffee-ground fluid. The epigastric pain was increased on the slightest pressure; the pulse was 80, and very weak; the tongue deeply furred in the centre, and its edges very red. Free action of the bowels had taken place on the preceding day. He was ordered twenty minims of the liquor morphiæ every four hours.

During the first night the morphia seemed to afford some relief. The vomiting of dark-colored fluid continued, the pulse was 88, and the extremities were cold. The second night was passed in great agony, the severest pain being referred to the region of the cæcum. A few leeches were applied to the part, without much hope, and without any other result than the gratification of the patient's earnest desire that something should be done. The vomiting persisted obstinately until ten o'clock in the evening. Early on the following morning the patient died, having retained his intelligence to the last.

The post-mortem was made by Mr. Harrison thirty-three hours after death. Flakes of lymph were found on the surface of the stomach, and the small intestines were everywhere glued together. A quantity of most offensive yellow puriform matter was collected in a cyst formed in the layers of the great omentum; and at the very commencement of the duodenum, on its anterior surface, was a perforating ulcer about the size of a pea, with clean edges, which were not thickened, but bevelled off from within outwards.

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ST. GEORGE'S HOSPITAL.

CASES UNDER THE CARE OF DR. OGLE.

Paraplegia from Disease of Vertebræ associated with Kidney Disease.—The patient, a man, was admitted with albuminuria and anasarca, intense dyspnœa, want of power in moving the legs, very great spinal curvature, and enormous bed-sores which exhausted him. After death the dorsal vertebræ, from the fifth to the ninth inclusive, were found to be very carious, and the dura mater of the spinal cord corresponding was covered with pus, and was thickened and vascular. The cord itself was also vascular at that part.

Unusual Symptoms from overloaded Rectum.—An old woman, the subject of bronchitis and emphysema, was admitted with pain at the lower part of the abdomen and dysuria—symptoms to which she had been previously subject. She was suffering from constipation at the time. Her sensations were those of a tumour in the vagina. Enemata which were injected were returned from the bowel. On a vaginal examination being made nothing was found wrong with the uterus or vagina; but the rectum was found to be crammed full of hardened fæces. It felt like a large tumour in the vagina. Persistence in strong purgatives brought away large quantities of fæces, and removed the pain and difficulty of voiding urine, which had evidently been due to mechanical obstruction. The bowel would have been relieved with the scoop had it not been relieved by medicine.

Alcoholism.—The patient, a butler, aged thirty-two, stout and rather bloated, was brought into the hospital suffering from intense dyspnœa of four months' standing, which had been attended by pains and tightness across the chest, which he attributed to cold. He had drunk freely of beer, had much headache, and had had rheumatism several times. When seen, on the following day, he lay in bed with a tremulous movement of the lips and the eyes quite closed, as if he had been insensible, the eyelids acting briskly in a reflex way when blown upon. The tongue was protruded with some difficulty, was red at the edges, and tremulous. Skin hot and perspiring. Purgatives, salines, and a low diet were given, and the tremulousness and heavy drowsiness passed off by degrees; quinine was subsequently given. After a stay of three weeks in the hospital, the patient was transferred to the Convalescent Hospital. In some respects the case was at first doubtful, presenting very much the aspect of a fever, but the absence of any change of temperature soon allayed the suspicion. No stimulants were given throughout the course of the case.

A case of *severe rheumatic fever*, of one month's standing, in a fire-brigade man, after exposure to wet for twenty-four hours. At first it was treated by simple effervescing salines, and two-grain doses of quinine; as sickness came on the latter was discontinued. He made a good recovery under neutral salines, and one or two doses of Dover's powder. Quinine was again resorted to during convalescence. The patient had had a similar attack, with a relapse, eight years previously. There was no heart-complication.

A case of *intense jaundice*, of two weeks' standing, in a young woman, following vomiting, which was attendant upon severe nursing night and day. She suffered no pain or abdominal enlargement, the urine was full of bile, and motions wanting. She recovered under taraxacum, and nitrate and acetate of potash with occasional aperients, so as to leave the hospital with but a slight tinge in a fortnight.

A case of *intense congestion of the lungs*, with bloody, rusty-colored sputum. The urine was albuminous. On recovery from the lung trouble the legs for the first time began to swell. The anasarca was increasing when the patient insisted on leaving the hospital.

A case of *anasarca* and *anœmia* in a man. There was enlargement of the liver and spleen, with increased vocal resonance in the lungs, especially the upper part of the left one, loud expectoration, and feeble inspiration. The heart was natural; urine abundant, and of specific gravity 1016 and 1018, no albumen detectable. At first frequent vomiting and purging occurred. Much improvement took place under meat diet, diuretics (taraxacum and broom), and, later on, the carbonate of iron pill.

A slight case of *enteric fever* of ten days' standing, in a girl nineteen years of age. On admission it was like a case of febricula. There were no rigors, tenderness of the abdomen, or diarrhœa. After frequent search a few doubtful spots were found only fourteen days after admission, but the evening rise of temperature marked the case. Recovery was effected under citrate of ammonia and salines, with soda-water and small doses of brandy.

A case apparently of *hysteria* in a child aged twelve. She had refused solid food for eighteen months, and had lived chiefly on sweets. On admission she lay cramped up in bed, complaining of intense pain in the abdomen, with her eyes constantly closed or half closed, as if light gave pain. The expression of pain was always exaggerated when she was watched or spoken to. She was very thin and weak, but no actual disease of any organ could be determined, and the temperature has been natural. Under proper food, with steel and quinine, valerian, and a little stimulant, she has much recovered already. She has been made to use her muscles, and to sit up near the window watching the "row" in the park, and has had shower-baths. She is eating solid food now, and taking cod oil, and is increasing decidedly in weight.

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GUY'S HOSPITAL.

A CASE OF GOUTY GRANULAR KIDNEYS AND IRRUPTIVE PNEUMONIA; FATAL BY ACUTE ŒDEMA OF THE LARYNX AND LUNGS.

(Under the care of Dr. MOXON.)

IN the following case a series of sequences led up to a rather sudden illness and death. Post-mortem evidence first revealed the fact that gout lay at the foundation of all the mischief. The patient was a middle-aged man, who was admitted for albuminuria. The amount of urine was more than normal; its gravity 1010. There was no dropsy, or only slight puffiness. Very soon after admission, and while the clinical clerk was taking a report of the case, the man fell into a convulsion, and continued until his death in a state of partial convulsion with intervals of complete coma. He was bled to thirty-six ounces without relief.

Upon inspection, the larynx, trachea, and bronchia showed intense acute inflammation. The mucous membrane was suppurating, a yellow lymph or pus lying in the mucous and submucous tissues, so as to give the membrane a very curious and unusual appearance, it being minutely mottled with yellowish patches on a dark-purple ground; yet no false membrane lay upon the surface, which was coated only with glairy mucus. The larynx was œdematous to such an extent as to close its opening. Both lungs were excessively loaded with serum, and at some points in each were small, dark-colored consolidations.

All these conditions make up an intense acute œdema of the lungs. The interstitial bronchitis is rare and remarkable; but such acute œdema of the lungs and larynx is, Dr. Moxon says, not infrequent in Bright's disease, and is apt to escape observation, especially when general dropsy lends the supposition that the œdema may be only a part of that condition. If the patient survive the attack of œdema many hours, pneumonia develops; but usually death occurs earlier, and often with convulsions. This condition is almost limited to Bright's disease; and many cases of death by convulsion in that disease are caused by this kind of attack. The accompanying convulsion arises through the predisposition which uræmia creates, and recalls the attack of convulsions that often usher in pneumonia in infancy, which, like Bright's disease, predisposes to convulsion. So far the state of the lung was of acute, and probably sudden, development; but besides this, and evidently long antecedent to it, there were patches of circumscribed induration seated in the lower lobe, and mostly deep in the lung. Also upon the pleura were several round contracted fibrous patches. Dr. Moxon calls this condition *irruptive pneumonia*, because he regards the patches of inflammation thus circumscribed and having a circular outline, as corresponding in their nature to cutaneous eruptions, and thinks that they are best understood from analogy with specific forms of cutaneous eruption. The lung, he urges, is a surface intricately complicated and infolded. An eruption upon this pulmonary surface will present the appearance to the naked eye of a knot, or mass, developed in the lung tissue. Such a patch of old grey induration may be viewed as a misplaced patch of gouty psoriasis. There is no reason to think that the limitations of area and depth, or the limitations in duration and destructiveness, which are observed in chronic eruptions in the skin are peculiar to the skin; it is surely highly probable that similar specific limitations in character and course govern the changes in the viscera as well. Whatever urticaria is on the skin, it is easily imaginable that urticaria may occur in or on the brain. We are too apt to consider everything that appears in the viscera as simply, coarsely, generically, inflammation; whereas the word "inflammation" is scarcely used in reference to the skin, so much are its inflammatory processes observed to differ from each other. Dr. Moxon believes that *chronic gouty psoriasis of the lung* would express more of the nature of this lung disease than such a term as grey induration. It will naturally be replied that much of the variety that is observed in skin eruptions depends on the complex structure of the skin, which allows of one ailment selecting hair-roots, another sebaceous glands, &c. But Dr. Moxon contends that no structural facts will explain the difference between erythema, eczema, psoriasis, and herpes, or the limitation to certain patterns of distribution and form in the varieties of each of these kinds of eruption. It cannot, therefore, be that, while chronic action of the inflammatory kind is so multiform on the skin, it is all mere general "inflammation" in the inward parts. He had seen several cases of circumscribed patches of chronic pneumonia both in gout and syphilis, but these cases are not usually seen post mortem until the irruption has become old and inveterate, so that its diagnostic features are lost; and it is well known that chronic cutaneous diseases in time become by inveteracy indistinguishable.

The case in question showed a good example of moderate gouty wasting of the cortex of the kidney. The great toe and knee-joints had urate-of-soda crystals on the cartilage.

SEAMEN'S HOSPITAL, GREENWICH.

NOTES ON FIFTEEN CASES OF CHRONIC DYSENTERY.

(*Communicated by* Mr. W. C. S. Clapham, House-Physician.)

The following fifteen cases of chronic dysentery, most of which were under the care of Dr. Stephen H. Ward, have been treated during the last six months at the Seamen's Hospital, and serve to illustrate the value of rest and careful dieting in combating this disease. All the men but one considered their disease as originating from drinking impure water, the exceptional one attributing it to getting wet, but acknowledging that the water on board was bad at the time. The "bad water" theory receives weight from the fact that Calcutta, which is responsible for more cases of chronic dysentery than any other place abroad (nine-tenths of all cases admitted during the last ten years being from this port), is notorious for the impurity of the water there supplied to ships' crews.

The stools in these cases were accompanied with the usual tenesmus and loss of blood, more blood being lost during the day than during the night, no doubt from the mechanical irritation caused by the food taken in the day-time passing over the diseased surface. The number of stools, on the other hand, is much larger during the night. Thus a patient passing twenty stools in twenty-four hours will pass sixteen or seventeen of them between 8 P.M. and 8 A.M. next morning, and then go through the day comparatively free. This nocturnal visitation some account for on the ground that the patients receive no medicine during the night; but when it is remembered that these cases were treated on the "placebo" scheme, this theory cannot be much relied on.

Mr. Clapham tried the effect on one patient of letting him have his medicine (placebo) every four hours throughout the twenty-four without effecting any diminution in the number of the stools. He thinks that a more rational explanation may be deduced from the circumstance of the temperature being lower at night, cold having a very deleterious effect on patients suffering from this disease. Another troublesome symptom is flatulence, which is best relieved by drinking something warm, such as tea. In two bad cases he met with retention of urine, necessitating the introduction of a catheter. The urine is usually normal. The dry, glazed tongue was well marked in all these cases, and is, Mr. Clapham thinks, almost pathognomonic of chronic dysentery.

The prognosis is decidedly favorable if the patient has not had a previous attack.

The treatment adopted, and which has been termed "placebo," is identical with that recommended by Mr. Harry Leach in the *Practitioner* of December last. It consists in administering ten minims of compound tincture of lavender in an ounce of water three times a day, with a morphia draught at night if required, and a dose of tincture of opium and castor oil (fifteen minims to the ounce) every few days if the straining is excessive. The diet consisted of milk, bread, tea, beef-tea, and arrowroot, and occasionally a little sherry. The horizontal position was strictly enforced.

The following table shows where the disease was contracted, its duration on admission, the duration of treatment in hospital, and the result in each case.

Age.	Where contracted.	Duration of illness.	Duration of treatment.	Result.
19	Baltic... ...	14 days* ...	9 days	Cured.
58	China... ...	4 months ...	19 days	Cured.
23	Tangarog, Black Sea	6 months ...	10 days	Cured.
48	China... ...	15 months ...	29 days	Cured.
23	Calcutta ...	6 months ...	8 days	Cured.
30	Calcutta ...	3½ months ...	30 days	Cured.
23	Calcutta ...	7 months ...	43 days	Cured.
38	Shanghai ...	1 month* ...	17 days	Cured.
25	Calcutta ...	7 months ...	9 days	Cured.
24	Hong Kong	15 months ...	15 days	Cured.
27	St. Kitt's, W.I.	6 weeks ...	8 days	Cured.
34	Calcutta ...	8 months ...	72 days	Died.
32	Tangarog, Black Sea	8 months ...	18 days	Cured.
30	Sidney ...	3 months ...	10 days	Cured.
28	Calcutta ...	8 months ...	24 days	Cured.

* Second attack.

All these men were treated on the above plan, with the exception of camphor and opium being administered for two days to No. 13, with, however, so bad a result as to necessitate its being scored off at the end of that time. Some little variation of treatment was also allowed in the case of the patient who died. From the above table it will be seen that the average duration of illness on admission was a little over 6¼ months, and the average duration of treatment in hospital was a little under 21½ days.

The post-mortem appearances found in the case of John O—— (No. 12) were as follows:—*Thorax:* Lungs healthy, but anæmic. Heart normal.—*Abdomen:* The large intestines, from the rectal side of the ileo-cæcal valve to within an inch of the anus, presented a number of large ulcers, involving the two internal coats of the bowel, of various sizes. Most of them were ovoid in shape, with well-defined margins. There was more of diseased than of healthy surface in the colon. One large ulcer in the transverse colon extended quite round the gut. The ascending colon was most affected. Disease was limited above by the ileo-cæcal valve, the small intestines being quite healthy. Liver congested and fatty. Pancreas somewhat thickened. Other organs healthy.—The weight of the viscera was as follows: Right lung, 15½ oz.; left lung, 11¾ oz.; heart, 10¼ oz.; kidneys, 10 oz.; spleen, 10 oz.; liver, 4 lb. ¼ oz.

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KING'S COLLEGE HOSPITAL.

OPERATIONS BY SIR WILLIAM FERGUSSON.

Removal of a small Tumour, of doubtful origin, from the Upper Jaw.—At first it was uncertain what were the contents of this tumour which projected between the gum and the cheek, and whether it was superficial in regard to its relation to the bone, or an outgrowth projecting from the interior of the antrum. On being punctured, it emitted some glairy fluid and collapsed. Sir William Fergusson pointed out, as interesting, that though the cyst had been enclosed anteriorly by soft tissues only, as shown by the absence of all sensation of crackling when it collapsed under his finger, it had produced a very distinct depression in the anterior wall of the antrum.

Iliac Abscess and Disease of the Hip.—The patient appeared to be the subject of advanced hip disease, and presented an extensive fistulous opening immediately above and parallel to the crural arch. After dividing the femur below the trochanter major and exploring for dead bone in the iliac fossa, Sir Wm. Fergusson proceeded to consider the relation which the iliac and cotyloid disease had held to each other. He stated that the patient had been admitted with an iliac abscess, to which alone treatment was for a time directed. Afterwards, however, a marked decline in his health was observed, and a little later the head of the femur passed out of the socket. He then concluded that the boy had all along been suffering from hip disease, which had been over-looked while attention was being paid to the iliac abscess, of which it was the cause. But when he came to operate he had been astonished at the comparatively healthy condition of the head of the femur, and he found in the cotyloid cavity that which explained the real cause of the disease—namely, a considerable quantity of pulpy matter, which he took to be the softened round ligament and synovial membrane. He now concluded that the disease had commenced with iliac abscess, to which the hip disease had been secondary; and that the disorganisation and consequent swelling of the round ligament and synovial membrane had, without doing, comparatively speaking, serious damage to the head of the femur, lifted it out of its socket, much as mushrooms have been known to raise a paving-stone from its bed.

Sir Wm. Fergusson also removed, by the lateral incision, a stone from the bladder of a middle-aged man.

EVELINA HOSPITAL FOR SICK CHILDREN.

A CASE OF EMPYEMA, TREATED BY PARACENTESIS AND SUBAQUEOUS DRAINAGE.

(Under the care of Dr. W. S. Playfair.)

For the notes of this case we are indebted to Mr. Clement Godson, lately medical registrar to the hospital.

Thirty-eight days before admission the patient had caught cold during the night, and awoke with pain in the side. On admission, the left chest measured three-quarters of an inch more than the right, was universally dull, and presented no intercostal depressions; the heart beat about half an inch below the right nipple; the temperature was very variable. All the other physical signs combined to indicate that the pleura contained fluid.

A few days after admission it was found advisable to relieve the chest by paracentesis, and about a pint and a half of purulent fluid was evacuated, to the manifest relief of the patient. In eleven days more the operation became again urgently necessary, and on this occasion the fluid was conveyed by means of a piece of india-rubber tubing, which entered the cavity of the pleura and was fixed to the chest by means of wire and strapping, into a bottle partly filled with water, through the cork of which it passed; the extremity of the tube fell below the level of the water. A pint and three-quarters came away on this occasion. During each of the three succeeding days about two ounces of pus were discharged into the bottle, for some more days about an ounce, then for a few days half an ounce, and so on, until on the thirty-second day the discharge became so slight that the apparatus was removed, and a small strip of lint was introduced into the wound. In a few days more this also was discontinued, and the fistula was allowed to close. On the forty-second day the wound had closed and the child was in good health. In a few days more she was sent into the country. When she was discharged there was some slight contraction of the chest-wall below the clavicle, but the heart had resumed its natural position, and normal resonance and good respiratory murmur had been everywhere established.

Provincial Hospital Reports.

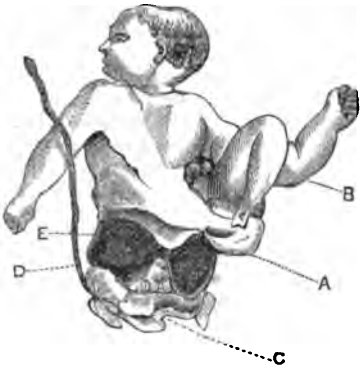
QUEEN'S HOSPITAL, BIRMINGHAM.

CASES UNDER THE CARE OF MR. CLAY.

(*Communicated by* Mr. Hopkins.)

Prolapse of the Uterus; Elytrorrhaphy; cure.—The patient, aged forty-three, a laundress, was admitted with prolapse of the uterus and menorrhagia. On examination, the uterus was found to protrude two and a half inches beyond the vulva; it was of the normal size, extensively ulcerated, and gave rise to a thick, yellowish, offensive discharge. She had worn several pessaries, without deriving any benefit. Her sufferings were very great, and arose chiefly from severe pains in the lumbar and inguinal regions. As she was incapacitated from following her employment and urgently wished for some permanent relief, Mr. Clay decided to perform elytrorrhaphy as soon as the parts should be in a fit state. The uterus was replaced, the recumbent posture enjoined, and lint soaked in glycerine applied daily to the ulcerations. When, in three weeks, these had healed, it was determined to perform the operation. A trowel-shaped portion of mucous membrane was removed from the anterior wall of the vagina, and the denuded parts were united by means of silver wire sutures. There was no hæmorrhage. Opium was administered to relieve pain and constipate the bowels. All went on very well until the third day, when uterine epistaxis and extensive vaginitis supervened. The vagina was occasionally injected with a solution of hyposulphite of soda. The lowermost suture, however, ulcerated through, and it was feared that the whole of the united surfaces would give way. These fears were not realised, for when the stitches were removed, a fortnight after the operation, the whole denuded tract was found to be firmly united and the uterus held in excellent position. An india-rubber air pessary, moderately inflated, was worn a few days after getting up, and in five weeks from the operation the patient left the hospital, freed from the discomfort she had previously experienced. She was requested to wear the pessary for a month or two, in order to support the uterus while she underwent unusual bodily exertion. Five months after the operation she presented herself at the hospital for examination. The use of the pessary had been discontinued. The uterus was retained high up in the vagina. The menstrual discharge was not by any means excessive. She had gained flesh, said she felt quite well, and expressed her gratitude for the relief she had obtained.

Delivery of a deformed Fœtus; accidental post-partum hæmorrhage.—This was the patient's ninth pregnancy. Her previous labours, with the exception of the last two, had been quick and regular. In the last three pregnancies she had, during the latter months, suffered from occasional large losses of blood. When the labour in question commenced, Mr. Newman, to whom the case had been entrusted, found the patient suffering from severe hæmorrhage, and much exhausted in consequence. The os uteri was dilated to the size of a crown-piece, and a soft irregular mass, which was believed to be the placenta, presented. On assistance arriving it was however discovered that the liquor amnii had been discharged, and that the child's intestines were in the vagina, while some unusual and irregular projections could be felt within the uterus. As the woman was in a very critical condition, and delivery was urgent, Mr. Clay was sent for. He diagnosed that the presentation was pelvic, and that the child was maimed, and probably deformed. Ergot having been administered, he proceeded to deliver the woman. The stump from which the foot had been removed, was drawn down, and traction made with it, but owing to the absence of the foot, and the slippery state of the limb, the leg repeatedly slipped from the hand and it was found impossible to move the child by its aid. The use of the fillet, for various reasons, was inadmissible, and Mr. Clay, having the craniotomy forceps at hand, applied them, and by means of traction on the leg the pelvis of the child was born. The delivery of the other parts of the child was then easily accomplished. The placenta was generally adherent, and was removed by the introduction of the hand, and peeling it off the uterus. An alarming hæmorrhage now supervened, but was quickly controlled by grasping the uterus, and by the application of cold. Restoratives were freely administered, and the patient rallied well, and made a good recovery. The following woodcut, from a drawing made by Mr. Ricketts, one of the students of the hospital, gives a representation of the irregularities which the child presented.



A, Rudimentary leg. B, Amputated leg. C, Intestines. D, Portion of intestine. E, Liver.

In commenting on this case, Mr. Clay observed that it presented the following malformations:—Eventration (ectopia) from extensive arrested development of the anterior parietes of the abdomen; intra-uterine amputation of the foot of the left lower extremity; and a rudimentary limb arising from the upper portion of that limb (permelus and micromelus). It was of great practical interest as showing that no rules can be laid down for the management of such cases, and that the practitioner must depend upon his knowledge of obstetrics and the means at command for the detection and treatment of any complication which may present itself. The pelvic presentation was easily diagnosed by first finding the spine, then passing the finger down this structure to the anus and up the projecting part, which it was not difficult to conclude was a leg, although the absence of the foot was at first somewhat puzzling. The craniotomy forceps had been an excellent auxiliary in the delivery.

MANCHESTER ROYAL INFIRMARY.

LIGATURE OF THE EXTERNAL ILIAC ARTERY FOR FEMORAL ANEURISM.

(Under the care of Mr. Lund.)

The patient, who was forty-two years of age, had an aneurism high up in the course of the left common femoral artery. He stated that fourteen months before he had had pressure applied continuously for thirty-nine hours above Poupart's ligament, which caused a diminution in the size and pulsation of the tumour, but was followed by a sloughing sore, which after a time healed up, leaving a large white firm cicatrix.

For about a year previous to his admission he had been without treatment, and the tumour had been slowly increasing.

The operation of ligature of the external iliac artery was rendered tedious by the large quantity of subcutaneous fat, and the adhesion of the anterior wall of the sheath to the superjacent tissues. An antiseptic catgut ligature was employed, and was cut off close to the vessel. The wound was closed with antiseptic silk sutures, and was then dressed with lac plaster.

On the removal of the sutures, on the eighth day, the wound was found to have healed in its entire extent, except at one angle where it dipped into the cicatricial tissue. The dressings were changed eight times, carbolised muslin being substituted for the lac plaster on the last two occasions. No pus whatever was secreted, not a single bad symptom occurred, and the patient was sitting up on the twenty-sixth day.

WEST NORFOLK AND LYNN HOSPITAL.

LIGATURE OF THE EXTERNAL ILIAC ARTERY FOR FEMORAL ANEURISM.

(Under the care of Dr. Lowe.)

W. M——, aged twenty-eight, a tailor, recently discharged from the army, a man fond of athletic sports, and a good runner, but of intemperate habits, was admitted with a marked tubular dilatation of the femoral artery, of a uniform diameter of an inch and a half, and extending two inches and a half from Poupart's ligament. His attention was first called to it by a sudden onset of severe and continuous pain on the morrow of a debauch. He had always enjoyed good health. What with the administration of digitalis and sulphate of magnesia, and rest in bed, he remained free from pain for three days; but it returned with its former severity on his drinking a glass of beer; it was more severe than elsewhere at the knee. Under the continued use of digitalis a slight diminution took place in the size of the aneurism, and the throbbing became considerably less.

The necessity of an operation having, however, become obvious, an incision about three inches in length was made after Cooper's method. The vessel was tied about an inch above Poupart's ligament with a silk ligature, the ends of which passed through the incision. The wound was washed with a solution of carbolic acid, closed with silver sutures, and dressed with carbolised oil. It healed by first intention, except at the point of exit of the ligature. It discharged very little pus, and that of a healthy character. Up to the thirty-sixth day the ligature showed no disposition to come away, although frequent traction was made upon it. It was therefore attached to a thin india-rubber band which was fixed by strapping, at a moderate tension, to the thigh. Four days later it came away. The remainder of the wound speedily closed, and the patient was discharged. Sixty-five days after the operation he was found to be walking about as usual, and reported himself quite well. The aneurism had shrunk to about the thickness of a finger.

Medical Societies.

OCTOBER—NOVEMBER.

OBSTETRICAL SOCIETY OF LONDON.

Dr. Braxton Hicks, F.R.S., President, in the Chair.

Dr. Protheroe Smith showed a new Expanding Cylindrical Speculum Uteri. It consists of a truncated cylinder divided longitudinally at its upper third into four hinged blades. At the centre of each hinge a vertical sliding rod is affixed, having a deep notch at its inferior extremity. The base of the cylinder is surrounded by a movable ring or rim, within which are placed four small wedge-shaped springs corresponding with the notches already mentioned as belonging to the vertical rods. This ring is rotated by the handles of the speculum when pressed together, the effect being to force the wedge-shaped springs within the notches of the vertical rods, and thus by drawing down the rods to produce lateral expansion of the blades. One or more of the blades may be left stationary, whilst the others are expanded; or any of the blades may be made separately to collapse or expand at will.

Dr. Heywood Smith said that this speculum, when expanded, not only drew forward the cervix uteri, but revealed the whole of its external aspect, as well as afforded a free view of the cul-de-sac all round the uterus.

Dr. Whitehead exhibited two instruments for producing vesication previous to vaccination, the one with ammonia, and the other with boiling water or the flame of a spirit lamp.

Dr. Heywood Smith exhibited a Marine Vaginal Irrigator, which had been given him by an instrument maker. It was made of gum elastic, closed at one end, and closely perforated with holes to permit the passage of the sea-water into the vagina during bathing.

Dr. Barnes said a similar contrivance had been shown at the exhibition of obstetrical instruments.

Dr. Barnes read a note on the Rupture of an Intra-peritoneal Hæmatocele into the peritoneal cavity. One case was recorded by Dr. West, and another as having occurred in Seyfert's practice; but the occurrence was so rare that Dr. Barnes adhered to the opinion expressed by him at the preceding meeting, that puncture was required only when toxæmic symptoms, consequent on an unhealthy change in the blood-clot, manifested themselves.

Dr. Protheroe Smith related three cases, in each of which, after the sudden disappearance of a retro-uterine tumour, severe peritoneal symptoms became developed.

Dr. Playfair read the particulars of a case of Sudden Death in the Puerperal State. Although no post-mortem examination was permitted, the symptoms were characteristic of death from pulmonary thrombosis. The patient was a typically healthy woman, but when convalescent from her confinement had a slight attack of pleurisy. Dr. Playfair believed that this increased the hyperinosis already existing, and he concluded that inflammatory affections in the puerperal state, though they might not be severe in themselves, were for the above reason to be much dreaded.

Mr. Scott had in his recollection three cases proving the danger of the occurrence of inflammation in a system previously debilitated by illness. In each of the cases peritonitis supervened, and death occurred suddenly after slight exertion in bed. On a post-mortem examination a distinct clot was found in the pulmonary artery.

Dr. Routh asked if the heart had been examined, as the symptoms might have been those of cramp or spasm of the heart. In such a case it would probably be advisable to prescribe alkaline salts, such as the sulphosphate of soda, and especially ammonia.

Dr. Wiltshire inquired whether the urine had been examined, seeing how frequently pleurisy was a complication of Bright's disease. The hyperinotic condition of the blood was probably suddenly increased by the hearty breakfast of which the patient had partaken shortly before death.

Dr. Tilt read a paper "On the Diagnosis of the least known varieties of Uterine Inflammation." The author admitted that all the uterine tissues were inflamed in superacute, in acute, and in chronic metritis, and he explained by what signs these three varieties of metritis might be recognised; mentioning that, while the acute variety was very rare, the chronic was a disease of frequent occurrence. Dr. Tilt believed that one of the uterine constituents could not be long inflamed without the adjacent tissues becoming more or less diseased, and that in the cases called internal metritis, or endometritis, because inflammation of the lining membrane of the womb was their leading pathological condition, there was often a thickening of the uterine walls, to be explained by congestion in most cases, and occasionally by inflammation. In the more chronic stages of internal metritis the uterine walls were said to become thinner, and to be softened by fatty degeneration, a circumstance that should teach caution in the use of the uterine sound. The author discussed the symptoms of internal metritis, and he was thereby led to deny that fundal metritis—that is, inflammation of that portion of the endo-womb which lies between the insertion of the Fallopian tubes—had any particular symptoms by which it could be distinguished from ordinary cases of internal metritis. Dr. Tilt asked the Fellows to compare Dr. Routh's cases of fundal metritis with those he had himself published in his work on Uterine Inflammation, promising that they would find the same liability to metrorrhagia and to purulent discharges capable of becoming intensely acrid, the same tendency to obstruction to the free exit of the fluid secreted in the body of the womb, and the same kind of very acute uterine pain, aggravated by any kind of pressure, whether made by the finger or the uterine sound, of which Dr. Tilt reprobated the use in acute metritis.

After some remarks by the President,

Dr. Playfair said that, although he did not doubt that often the body of the uterus was largely involved, he considered Dr. Tilt underrated the importance and frequency of morbid conditions of the mucous membrane lining the cavities of the cervix and uterus. Grave alterations were very generally present in such portions of the mucous membrane as were accessible to sight, and it was reasonable to infer that, by continuity of tissue, similar alterations existed in the more deeply seated portions of the mucous membrane. He believed that all who had tried intra-uterine medication in such cases would bear witness to its remarkable curative power. The application was easy, as the os uteri was always morbidly patulous, and one of the first symptoms of improvement was the closure of the os.

Dr. Henry Bennet said that arrest of uterine irritation was much more frequently the cause of an increased size of the uterus in child-bearing women than actual inflammation. It was also a frequent mechanical cause of uterine displacements and flexions of all kinds. For many years he had carefully weighed the uteri of all the child-bearing women who died under his care, and found that in all who presented lesions of the cervix, subsequent to parturition, the uterus had not returned to its natural weight. Dr. Bennet thought Dr. Tilt was scarcely warranted in saying that internal metritis in non-parturient women was a common disease. If confounded with inflammation of the mucous membrane lining the cervical cavity, of course it would appear to be common. The principal diagnostic signs of internal metritis, in his experience, were, a patulous state of the os internum, an aggrandised state of the uterine cavity, and a muco-sanguinolent discharge. The inflammation, when it extended to the uterine cavity, seemed to paralyse and relax the cervical muscular fibres, which constitute what he had termed the sphincter of the uterine cavity.

Dr. Routh said that in these cases of enlarged uterus with internal metritis it was the fundal portion which increased, and he believed it to be contrary to clinical observation to deny that this part might be exclusively attacked with inflammation. The nervous supply of the fundus uteri, derived from the renal plexus, and being indirectly connected with the semilunar ganglia, was *à priori* evidence that we might expect more general and severe symptoms than when the body of the uterus only or the cervix was attacked. He could not agree with Dr. Bennet that because disease of the uterus was cured by active measures to the cervix, therefore the disease was in the cervix. Blistering or cauterising the cervix relieved, not only the cervix, but the whole organ. The internal os was occasionally liable to severe inflammatory lesions, attended with agonising pain, and such cases were, he believed, incurable.

Dr. Fordyce Barker, of New York, assented to most of the statements and doctrines in the paper. But although it was generally believed that acute non-puerperal metritis was a very rare affection, he suggested that cases of sudden suppression of the menses, attended with intense uterine pain and other pelvic symptoms, with fever, quick, hard pulse, headache, and sometimes more or less cerebral disturbance, were not very rare, and that they really were cases of acute metritis, which terminated frequently by resolution, leaving no permanent lesion of the organ. Dr. Barker could hardly understand the term fundal endometritis. The distinctions between inflammation of the lining membrane of the cervix and that of the body of the uterus could readily be understood, as the histological and physiological differences between the two membranes were now accepted in science. But if the term fundal endometritis implied a difference which could be recognised, and required different therapeutical measures from chronic inflammation of other parts of the body of the uterus, he could not as yet comprehend it. He would ask whether pain was not the most fallacious of all symptoms in establishing the existence or the character of uterine disease. Again, as regards the pain produced by the introduction of the sound in the so-called fundal endometritis, was it not the usual fact that on the first introduction of the sound, when the point reached the fundus, pain, sometimes very severe and persistent, was complained of; while in the same persons a tolerance of the instrument was acquired after it had been used a few times?

Dr. Protheroe Smith fully recognised the active metritis described by Dr. Barker. Regarding the uterine canal as a whole, consisting of vagina, cervix uteri, body, fundus, and Fallopian tubes, there were, he believed, corresponding differences in the symptoms marking the occurrence of inflammatory and catarrhal affections of these different parts. When the tubes were primarily affected, the discharge was watery and colorless and ejected spasmodically with painful expulsive efforts, whilst when the cavity of the fundus and body was attacked it would be productive of considerable suprapubic pains and irritable bladder, and at first the discharge would be thin and often tinged with blood. Again, the glairy secretion, tumefaction, and everted uterine lips marked similar affections of the cervix. Yet all these, if allowed to run their course, soon merged into one disease affecting the entire canal.

Dr. Tilt, in reply, said that he could not see how he could express himself more strongly than he had in appreciation of the value of treatment directed to the cervix, but he often found that this was insufficient to cure chronic metritis and internal metritis, and he believed that the future improvement of uterine pathology lay in the study of the inflammatory diseases of the body of the womb. With regard to his dissent from the views entertained by Dr. Routh respecting fundal endometritis, Dr. Tilt said the whole question was now placed before the profession, and he confidently left it to the decision of future observers.

Editorial.

THE THERAPEUTICS OF CHOLERA.

The profession has no need to be ashamed of its work in so far as regards the elucidation of the laws which regulate the communication and distribution of cholera. The public may be assured that, if local sanitary authorities will seriously and energetically use the powers possessed by them, and act up to the light already given by medical science, cholera, should it unfortunately reach our shores, will be likely to be more curtailed in its diffusion than on any previous occasion.

The therapeutics of cholera are not in so creditable a state as the epidemiology of it. We have got rid of some erroneous notions. We know better the limits of the power of remedies, and have learned the very doubtful advantage of some medicines that were thought to have specific virtues. Further, we have recognised more fully the natural history of cholera. Above all, we know the importance of adapting our treatment to the particular stage of the disease. But, having said this much, we can say little more; and yet it is of great moment, for the sake of the reputation of the profession and the satisfaction of the public, that we should be able to advance further, and lay down, with some show of unanimity, certain rules of treatment.

The chief difference of opinion in the profession has reference to the treatment of the diarrhœal stage of the disease. Everybody is agreed that, when collapse has set in, the recovery of the patient is likely to be furthered, not by active medicinal treatment, but by gentle and unirritating means for restoring the lost fluid of the tissues and of the blood, and by giving saline and other drinks, never forgetting the inestimable preciousness of cold water, with or without the addition of a few grains of soda or carbonate of ammonia, as suggested by Dr. John Murray, of the Indian medical service, in his very sensible paper read recently before the British Medical Association. We may further note Dr. Murray's praise, in regard to the treatment of this stage of the disease, in protracted cases, of the use of Liebig's extract of meat, and of hot saline enemata given after each motion. The use of astringents in this stage of cholera would be absurd, and the use of opium more than absurd. Very much the same words would characterise the use of alcohol. The stage of collapse, and the equally or more fatal stage of reaction, are most complicated, and can only be treated safely by a practitioner who carefully considers the peculiarities of each case, and the exact way in which death seems particularly to threaten. There is one remedy which has had a great reputation in this stage of the disease concerning which we hear less and less, even from those who used to vaunt its power—we mean calomel. We used to hear it said that if only the liver could be got to act, if only a bilious stool could be procured, the patient would do well. This was almost tantamount to saying that if only the patient lived he would live; for, if life is to go on, it must be in the way of the the restoration of all the ordinary processes of life, including especially the secretion of urine and bile, and all real remedies act by furthering these secretions. But the special power of calomel is now no longer vaunted. Whether Dr. Hughes Bennett's doubtful experiments have made medical men more sceptical of the power of calomel over the secretion of the liver, or whether they have simply come to perceive that in cholera cold water is likely to be a more effective cholagogue than calomel, it might be difficult to say. Be this as it may, calomel is not in much reputation, and even Indian practitioners have given it up. We may reasonably hope, then, that there will be no wasted experiments on the use of this remedy.

As we said before, the only question concerning which there is much difference now in the profession is that of the treatment of the first stage of the disease. The irrepressible castor-oil controversy is threatening to assert itself again. To say nothing of the physician who is chiefly associated with the eliminative theory of treatment, a distinguished medical Baronet, not given to commit errors either of judgment or of taste, does not hesitate, every now and again, by somewhat unusual courses, to indicate his adoption of the castor-oil plan of treatment, or allow it to be indicated. On one occasion, if we mistake not, Sir Thomas Watson intimated that, in the event of an attack of the disease happening to himself, he would try the eliminative treatment. If this treatment is to have further trial on the strength of the authority of Sir Thomas Watson, we can only hope that Sir Thomas's authority will continue to be entirely dissociated from any personal experience of the treatment, as it is now admittedly unsupported by any personal observation of cases. Sir Thomas Watson's mere authority will undoubtedly cause this practice to be tried more extensively than otherwise it would be, and there is great responsibility in such a use of authority. But the days are gone for enjoining a practice on the strength of mere authority apart from personal or clinical experience; and we cannot doubt that the profession will agree with us in thinking that Sir Thomas Watson would have done better to withhold views on this momentous subject till he was able to support them by some facts, either within his own observation or which it was in his own power to certify.

The general opinion of the profession, supported by an extensive observation of facts, both in England and India, is in favor of restraining the diarrhœa. A correspondent of some authority, Mr. Sedgwick, expresses the common opinion of the merits of the two plans of treating the first stage—viz., that which aims at restraining the diarrhœa, and that which aims at evacuating the motions, which are supposed to be channels of elimination of the poison. It seems clear to us that the indication of treatment in the first stage is to keep the blood intact, as far as possible, by restraining the diarrhœa. We do not mean here to justify this opinion, though it would be easy to do so. Even in Dr. Johnson's hands in King's College, 13 out of 21 cases treated with castor oil died during the last epidemic; notwithstanding this and a general adverse opinion, Dr. Johnson and Sir Thomas Watson boldly advocate the use of castor oil again. Where all treatment is so much at fault, it would be wrong to be intolerant of any. But a treatment so homœopathic as this, and withal so apparently serious in its effects, should be tried under very strict conditions and before impartial witnesses in a way that would enable the profession to come quickly to a definite conclusion. Under all the circumstances of the case, we hope that this point in the therapeutics of cholera will be thoroughly studied by a special committee of each medical Society. Only in this way can the question be set finally at rest. And life and the reputation of the profession depend on its settlement.

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REGENERATION OF ABRADED CORNEAL EPITHELIUM.

THE new Year-book of Medicine by Professor Stricker, of which the first two parts have just been published, contains a series of papers that indicate in a very remarkable manner the direction that pathological research is taking in the hands of accomplished histologists, and the important part played by the microscope in establising the foundations of our knowledge in that essential branch; whilst at the same time it demonstrates that patient observation and comparison are slowly displacing crude theory and illogical conclusions, and affords some grounds for hope that the day will come when medicine will be no longer stigmatised as an empirical art with little claim to the title of a science.

The two parts contain sixteen articles; and of these no less than eight are devoted to most minute and careful descriptions of the effects of inflammation on different structures. Thus Dr. Heiberg gives an account of the process by which the corneal epithelium is regenerated, and Dr. Hausen the results of inflammation in the corneal tissue; Dr. Güterbock the effects of inflammation of tendons; Dr. Yeo the pathology of inflamed lymphatic glands; Stricker himself the nature of the poison of pus, and another paper in conjunction with Dr. Albert—an account of traumatic fever; Dr. Lang gives the pathology of inflammation of the bones; Dr. Kimdrat a paper on the inflammatory changes in the endothelia of serous membranes; and Dr. Albert one on inflamed hernia. We propose to notice several of these papers separately.

Dr. Hjalmar Heiberg's (of Christiana) paper on the Regeneration of the Corneal Epithelium, which leads off the serial, contains several important points. A paper recently appeared in Virchow's Archiv by Julius Arnold on the same subject, who came to the conclusion that the new cells which replaced the old, when these had been detached, were derived from a finely granular blastema that changes into protoplasm, and that in this protoplasm the new cells arise by a process of free cell-formation. The correctness of this conclusion is contested by Dr. Heiberg, who maintains the view that the young cells are developed from the old, in which certain changes have taken place. His mode of procedure was to scratch the surface of the cornea with a cataract-needle in animals (frogs, birds, rats), and, after the lapse of from eighteen to forty hours, to remove the eye and examine the cornea both by means of fresh sections and after careful preparation in solutions of chloride of gold (maceration for from three to five minutes in a one-half per cent. solution of the salt). In certain preliminary experiments it was found that the injured part *immediately* after the injury presented sharply-defined irregular borders; after six hours the margins were considerably flattened, so that the boundary of the abrasion was much less distinct. After eighteen hours it was difficult to tell the seat of the injury with the naked eye, and its diameter had become reduced to one-half or one-third; and after forty hours recovery was complete. He convinced himself by microscopic investigation that the process of regeneration of the epithelium proceeds from the margins of the abrasion, the layers of cells immediately bounding the seat of injury becoming elongated, and, as it were, sending forth processes towards its centre; so that the margins are rendered very oblique, whilst at the same time the exposed surface of the cornea is raised considerably above the level of that which is still covered by the cells. Sometimes the cell-processes become detached and contract into glassy, clear, rounded masses; but he has never noticed the free formation of cells in a blastema, and does not believe that the white corpuscles of the blood or "migrating cells" play any part in the regeneration of the cells, though he has occasionally met with them between the epithelial cells and in the substance of the cornea in the vicinity of the injury. In no single instance has he observed any appearance leading him to think that they undergo conversion into epithelial cells. The processes thrust forth by the cells, as above mentioned, were found, from observations extending over many hours, during which the cornea was placed in a current of serum, to undergo slow changes of form and size, the movements however being in no way comparable in activity to those of amœboid cells. The cells situated at a greater distance from the injured part often became granular, and their margins more distinct. In rats both the upper flattened and the deeper, more columnar cells seemed alike to thrust forth the processes destined to cover the floor of the injured part. Dr. Heiberg expressly remarks that he has not satisfactorily followed the separation of the cell-processes to form new cells, which again push out new outgrowths, to be again detached, though he obviously thinks this is what really occurs. Dr. Heiberg gives several drawings to illustrate the points mentioned in his paper.

Medical Annotations.

"Ne quid nimis."

THE LOCAL ACTION OF PUS.

Dr. S. Samuel, of Konigsberg, gives the following as the results of his experiments on the local action of pus:—1. Putrid material introduced subcutaneously into the ears of rabbits, to the extent of from ten to fifteen drops, occasions a more or less rapidly developing putrefactive process to take place in them, accompanied by swelling, green discoloration of the part, and intense putrefactive odor. These effects not only constitute the most characteristic reaction of putrid matter, but they also serve to detect the existence of a putrefactive process when the matter possesses no odor and has no chemical reaction. 2. This local process of putrefaction, which for the most part extends in only a slight degree beyond the part originally affected, is the more distinctly circumscribed by a well-defined line the longer the time the local process has for its development. 3. For, coincidently with the local putrefactive process septicæmia is developed, apparently by absorption of the injected material, which leads sooner or later, according to its intensity, to death. 4. The putrid material, when introduced in smaller quantities or in more diluted form, occasions the most varying degrees of inflammation, accompanied by more or less extensive suppuration, so that even the slightest prick is followed by a certain amount of suppuration. The forms of inflammation thus excited have nothing peculiar about them, and they may in their progress lose the putrefactive odor of the fluid to which they owe their origin. 5. The occurrence of characteristic symptoms of putrefaction goes hand in hand with the cessation of the local circulation. 6. Not all putrefactive materials produce within the same period of time the same quantity of putrid poison, and their consistence occasions variations in the rapidity of their action. 7. On comparing the effects produced by the subcutaneous injection of the various substances capable of being chemically separated in putrefying fluids with those of the pus itself, it was found that a saturated solution of leucin (1 to 27) was followed by very slight effects; carbonate of ammonia, formic, butyric, and baldrianic acids, and sulphide of carbon, all acted in quite a different manner, causing coagulation of the blood, with and without secondary vesication of the parenchyma. Solution of sulphuretted hydrogen, containing 3 vol. H S to 1 vol. aq., caused a weak green discoloration in the first instance, then slow suppuration, and therefore also a different effect. On the other hand, the effects of sulphides of ammonium presented many points of analogy, a few drops of a solution of the yellow sulphide of ammonium, or of the bright red sulphide, producing very similar effects when subcutaneously injected to those of putrid fluids, except that the smell is peculiar. Integrity of the skin gives immunity to sulphide of ammonium as well as to putrid fluids. 8. The subcutaneous action of the products of inflammation varies in producing the most different disturbances of nutrition, from slight inflammation to strong suppuration, putrefaction, and mummification. But the contagious nature of non-specific pus can be no more established than the existence of a special inflammatory poison. Amongst the inflammatory products, however, very different chemical and physical agencies are operative which induce quite distinct effects. 9. The chemical nature of the products results from the nature of the part originally affected, the cause of the inflammation, the violence of the suppuration, &c. A collection of pus is an albuminous mass in the body in which an anomalous metamorphosis of tissue is taking place. 10. The tenacious mucus of the nose of a violent catarrh produces a thick, yellow, and dence sac; the thick pus of a mammary abscess produces a violent inflammation, leading to coagulation in twenty-four hours; the pus of a boil acts in the same way, whilst the pus *bonum et laudabile* of a bubo produces a persistent, strong, and firm infiltration of the ear. 11. The glycero-phosphoric acid found in fresh pus gives rise in weak solutions to slight, in strong (1 to 9) to severe inflammation, not however running on to suppuration. Solution of common salt causes suppuration when injected of no greater strength than of 1 to 100.

PUERPERAL TEMPERATURE.

Mr. Squire has reprinted in a separate form his observations on Puerperal Temperature. He incidentally observes that the temperature of the vagina rises before the catamenia appear, and quickly falls afterwards. The temperature of the body is somewhat increased in the latter months of pregnancy. The commotion and efforts of natural labour, if not prolonged, do not seem greatly to elevate the temperature of the patient, even if accompanied with considerable agitation, heat, and perspiration. The temperature of the vagina appears to increase towards the end of labour. In one such case half an hour before delivery it was 99·9°, while only 97·8° in the axilla. In another case, more rapid but less severe, the vaginal temperature was 99·1° twenty minutes before the expulsion of the child, and exactly 99° ten minutes after. The temperature rises more in prolonged labour, and in proportion to the severity and duration of the muscular exertion required. In such cases a temperature of 100° to 101° is by no means infrequent, and 102° or more has been reached. It soon subsides after labour to the normal standard, generally in the first twenty-four hours. Sleep favors the gradual decline of temperature, and *vice versâ*.

The well-known elevation of temperature in connexion with the commencement of the function of lactation is illustrated by Mr. Squire. The commencement of this reaction is most regular. It attains a certain prominence forty-eight hours after the birth of the child. The termination of the reaction is very variable, and slight causes suffice to produce disturbances of temperature, such as a sore nipple or a slight inflammation of the breast. In primiparæ the milk process is more slowly settled, and the normal temperature is not recovered so soon or so reliably as in other cases where the process of lactation has become a habit. In two of the three primiparous cases the temperature rose respectively to 102° and 104·37°. In the last case it is remarkable that a high temperature was maintained for twelve days without either the breast or its function suffering. The cause of the elevated temperature was not quite clear. The state of the perineum is not referred to, and the patient made a thoroughly good nurse. In two cases in which the ordinary fall of temperature did not follow the formation of milk, the result seemed due to the use of alcoholic stimulants. In one, abscess followed; in another it seemed averted by withholding stimulants. Mr. Squire thinks stimulants safe and beneficial if the temperature is low and the secretion of milk copious. He should be more specific as to the nature and amount of the stimulants to be recommended. Evidently, care is requisite in the use of them, and attention to the idiosyncrasies of patients. Mr. Squire properly insists on the necessity of good food in the puerperal state and during pregnancy, but thinks that stimulants should be a matter of special order. Incidentally, he notices the action of the bowels in his puerperal cases, and gives very qualified praise to the use of castor oil in the cases in which it was given. An enema would have been better in some of the cases, in which the oil seemed to check the formation of milk. It is to be hoped that Mr. Squire will continue his observations on the puerperal state, and the best way of treating it. His cases are interesting, but still too few to afford a basis for general conclusions. His observations on points of diet, on the use of chloral and chloroform, though suggestive, also need multiplication.

TREATMENT OF GUNSHOT WOUNDS BY CONTINUOUS BATHS.

It is pretty well known that the German surgeons made frequent use of local baths in the treatment of wounds during the late war; with what result, we may hope to learn when the medical and surgical history of that war comes to be written. We have heard very different opinions expressed on the subject. Be this as it may, however, the following abstract of a case that appeared recently in the *Süd Deutschen Presse* strikes us as containing several points of interest. Dr. Röder, the well-known oculist at Heidelberg, placed his extensive establishment at the service of the Baden War Department as a lazarette. Among other patients he received a Bavarian officer severely wounded. A mitrailleuse ball had so shattered the left knee that the patella, as well as the extremities of the three bones and the adjacent soft parts, were severely injured. Amputation was recommended, but the debilitated state of the patient, and the unsuccessful results of such operations when not performed immediately on the field, conjoined with the energetic remonstrances of the officer himself, induced the surgeon to decline operating. It was then determined to try the effect of the application of continuous baths at a blood heat. For this purpose one was specially constructed, in which the patient could remain day and night. It answered its purpose so well that he was enabled to remain in it almost continuously for four months. By means of a gas apparatus the water was maintained at the requisite degree of temperature. A pillow for the head could be raised or depressed by means of rack-work; a horsehair mattress, covered with gutta percha, occupied the bottom of the bath; water at 37° to 40° C. (104° F.) being added to two-thirds of its height. A stretched gutta-percha cloth was then adapted as a cover to the bath, so as to avoid wetting and exposing the patient's head to cold. At midday he was daily lifted out of the water, and placed in bed whilst the water was changed and the bath cleansed. During the fever stage the temperature of the water was at 40° C., to prevent the patient, whose temperature was nearly as high, feeling cold; but, as he began to recover, 37° C. proved almost too warm for him.

The beneficial results of this treatment may be thus epitomised. The specific gravity of the water, partly supporting the body, is said to prevent undue pressure and the occurrence of bedsores more efficaciously even than an air or water bed; and the permanent bath operates also in opposing the rise and development of fever, in washing away the pus and other secretions from the wound, and in maintaining the aërial purity of the room. During the time the bath was being cleansed, the patient was either placed in another or on a bed, the limb being supported by wire splints. The bath was furnished with numerous tubes for the purpose of allowing the foul water to be drained off. In the case to which we are now specially referring the injured limb has been preserved, with a somewhat stiffened joint, and the patient at the end of four months was able to visit friends in a neighboring hotel.

In another case, that of a Prussian officer very severely wounded at the battle of Wörth, in which this plan of treatment was had recourse to with the view of alleviating suffering, it also seems to have answered exceedingly well.

THE INJECTION OF AMMONIA INTO THE VEINS.

The April number of the *Australian Medical Journal* contains a paper by Dr. George B. Halford in which he reverts at some length to the statement of the results of his experiments made in 1869; to the effect that, within one hour and a half, as much as four drachms and a half of the liq. ammoniæ (B.P., sp. gr. ·959) might be injected into the veins and even into the heart of dogs completely narcotised with chloroform, with the effect, at each injection of thirty minims, or even sixty minims, of restoring the animal to thorough consciousness and apparent original vigor. When the animals were subsequently killed, no injurious effect could be discovered in any organ of the body, the punctures into the ventricles even not being visible. Dr. Halford therefore suggested, in over-prolonged narcotism from chloroform, and in threatening syncope, the injection of ammonia into the jugular vein, or even into the heart itself. Dr. Halford says that some of his detractors have endeavored to make it appear that Dr. B. W. Richardson had tried this practice so far back as 1854, and found no advantage from it; quoting to this effect from a lecture by Dr. Richardson in a contemporary last year. He argues that he can find no allusion in Dr. Richardson's writings to such a practice. We may leave Dr. Richardson and Dr. Halford to settle the question of priority in the use of the injection of ammonia into the veins for narcotism from chloroform. The practice is one that British practitioners will be naturally slow to adopt; nevertheless, we feel it right to notice the records of Australian practice. Dr. Halford says further that he has thrown four grains of carbonate of ammonia dissolved in a sufficient quantity of water into the jugular vein of a dog without any bad effect—that he has thrown ten grains into the veins in the space of five minutes without the least bad symptom. Dr. Richardson, years before, with the assistance of Dr. Halford, performed a similar experiment; symptoms like tetanus followed, and death. Dr. Halford believes these bad results of Dr. Richardson's experiment were due, not to the ammonia, but to the manner of injecting the altered or altering blood. He mentions a case of snake-poisoning in which Drs. Jackson and Coker successfully injected twenty-five minims of liquor ammoniæ fortior (sp. gr. ·880); another in which Dr. Dowling heroically injected sixty minims in a severe case of snake-poisoning, saving his patient. And he refers to a case of Mr. Gilbee's, detailed in the same number of the *Australian Medical Journal*, in which, after heavy drinking of brandy, a young man swallowed an ounce of chloroform. He fell rapidly into a state of insensibility, with irregular pulse, cold extremities, labored breathing, and complete anæsthesia. After using the stomach-pump, half a drachm of the dilute liquor ammoniæ (B. P., sp. gr. ·959) was injected into the median cephalic vein of the left arm. In twenty minutes, the symptoms being somewhat improved, the injection was repeated in the right arm, with the effect of further reaction. In about two hours from the first injection another half-drachm was injected into the left arm. Consciousness returned in less than six hours. In six or seven more the patient died, having been troubled in the interval with thirst, sickness, diarrhœa, and sleeplessness. It is argued that the patient died from exhaustion and brandy poisoning, but that he was recovered wonderfully, though temporarily, by the injection of ammonia. It is to be regretted that experience elsewhere does not result in such favorable reports of this proceeding, but our duty is to record the practice of our colonial brethren, which is at least bold and original, and is said to be successful.

RESEARCHES ON THE MOVEMENTS OF THE INTESTINES.

In the last part of the Reports of the Academy of Sciences at Vienna S. Mayer and S. v. Basch give the results of their observations upon dogs and rabbits after poisoning with woorara, artificial respiration being at the same time maintained. The abdominal walls were divided down the middle line, and raised on either side by means of hooks, so that the intestines lay in a kind of trough, and were touched as little as possible. They found that compression of the aorta, which was isolated as far as possible in the thoracic cavity, constantly induced movements in the previously quiescent intestines. Exceptions, however, occasionally occurred, and not only, as Nasse stated, when the compression was kept up for too short a time, but even when it was compressed for a considerable period. Section of both vagi in the neck, of the sympathetic nerves, of the cervical portion of the spinal cord, and of the splanchnic nerves, were all without influence on the intestines. Suppression of the artificial respiration caused movements of the intestines, just like arterial compression; and if an animal be poisoned with woorara, it may be remarked that in proportion as the respiratory actions become feeble the intestinal movements appear, whilst they cease if artificial respiration be well kept up. The intestinal movements called forth by suppression of the respiration, like those caused by arterial compression, are independent of the central nervous system. The influence of the suppression of the respiration is much more distinctly expressed if the vascular musculature of the intestine is withdrawn from the influence of the central nervous system by division of the spinal cord or section of the splanchnics. The vessels of the intestines do not then become contracted during the dyspnœa, and it may be clearly seen that the intestinal movements commence as soon as the blood becomes dark in the dilated vessels, and again cease when, by resumption of the breathing, the blood in the vessels has become bright. Hence it follows that the quality of the blood is the essential condition affecting the movements of the blood. Experiments made with transfused blood lead to the same conclusion. The authors substantiate the statement that excitation of the vagus in the neck or thorax induces movements soon after death, though it is inoperative during life, and explain it by stating that the activity of the nerves commences at the period when the contracted blood-vessels dilate, and dark blood enters the intestines. The splanchnic behaves in the same way. This nerve contains, besides motor fibres, also vaso-motor fibres, the excitation of which last occasions the arrest of the intestinal movements. The so-called spontaneous movements occur under circumstances in which the intestinal blood is venous. So long as the excitation of the splanchnic prevents the entrance of venous blood into the intestinal vessels, no movements occur. They deny the existence of an "inhibitory influence" exerted by the splanchnic upon the intestine similar to that of the vagus upon the heart.

VITALISM AT THE ACADEMY OF MEDICINE OF PARIS.

The Academy has been engaged in an animated discussion on pyæmia; the two schools—viz., the iatro-chemical and the iatro-vitalist—being in presence. The first, as is well known, views the organism as passively submitting to germs or to decomposing fluids on the surface of wounds; the second considers the organism struggling and resisting more or less under the influences of traumatism. We need not dwell on the germ, dust, and noxious gases theories, as they are well known and ably defended; but as vitalists are few and far between both in this country and abroad, we will just quote a passage of a long and elaborate speech of one of the most eminent representatives of vitalism at the Academy. M. Chauffard says (*Union Méd.*, July 15th, 1871):—

"French surgeons have expressed the opinion that no relation exists between purulent poisoning and traumatic fever or the other febrile symptoms connected with wounds; whilst the Germans consider these relations perfectly intimate, going even so far as to look upon all the phenomena as of an identical nature, the apparent differences being only in degree. Truth is to be found in neither of these propositions, and lies in the pathogenic theory which I am defending, and which does not destroy the relations just mentioned. It may be shown that traumatic fever and malignant pyæmia, which are the opposite extremes of general traumatic symptoms, mainly exist through the participation of the living organism of the injured patient with the efforts at repair excited by traumatism. In the one case, this participation is of a normal and almost physiological character, guided by the healthy energy of the economy and an harmonious and powerful plastic activity. In the other case this participation is of a distressing kind; the sound economy is overcome and plasticity destroyed by an unconquerable and final disintegration. Between these two extremes ordinary pyæmia finds its place, with varying forms and a greater or lesser degree of severity. This pyæmia is a transition or link between pure traumatic fever and malignant pyæmia. Hence the pathologist and clinical observers are led from one to the other by a chain of morbid facts and symptoms. But this connexion of phenomena does not in any way weaken the essential characters of malignant pyæmia; it strenghens them, on the contrary, gives the explanation of their existence, and exhibits them in their proper light. Traumatic fever and ordinary pyæmia may be described as life bent upon a struggle, and preparing a victory in spite of general disturbance; whilst in malignant pyæmia, life is hurried away and hastening to destruction. In that moment the primitive order of things is transformed, and the living mechanism assumes a new essence."

RAPID CURE OF ABDOMINAL ANEURISM.

When Dr. William Murray, of Newcastle-on-Tyne, succeeded, for the first time in the history of surgery, in curing an abdominal aneurism by pressure in a few hours, he was still apt to be met by the remark that the case was not one of aneurism at all. Now, however, this cavil has been answered. In 1870, six years after the cure, the poor paviour who had been the patient died, and the post-mortem revealed the appearances proper to an aneurism cured by the compression and obliteration of the vessel at and below the seat of pressure, and, unfortunately, the existence of another recent aneurism too near the diaphragm to be cured by pressure as the first had been. The reports of several cases since in which the compression of the aorta under chloroform has resulted in the consolidation of the contents of aneurisms in an incredibly short time, such as twenty minutes, as in Dr. Heath's case, or twenty-three minutes, as in a case by Mr. Lawson, are apt to diminish our sense of the credit due to Dr. Murray, as the first physician to suggest this method. The pamphlet, however, in which he records the full history of his case will be read with much interest. Physiologically or surgically considered, the case is important. To arrest the circulation through the abdominal aorta by a pressure only tolerable under chloroform, though lasting only a few hours; to stop the pulsation of the femorals; to bring about, along with the entire disappearance of pulsation in the tumour, coldness and numbness of the extremities; to have the patient out at the end of a week, and walking a quarter of a mile, taking work as an engine-fitter in less than three months, and continuing to work variously but laboriously for six years, though at the end of that time compelled from the urgency of poverty to take to the work of paving, that caused the first aneurism, and soon landed him in a second, —is certainly to enlarge our notions of the resources both of nature and surgery, and to add to the brilliance of the art of healing. It is wonderful to find that the aorta can be so occluded with safety, and without apoplexy or other fatal results. Dr. Murray considers the cure effected by the production of coagulation of the blood in the sac, and that this, unlike the slower method of cure by fibrinous lamination, which extended over weeks, can be accomplished in minutes. It is a noticeable feature of these successful cases that the stoppage of pulsation in the tumour, though often not noticed at first, at length takes place rapidly. Dr. Murray includes in his report an account of the system of anastomosis of vessels, by which the occlusion of the aorta was compensated for. We commend Dr. Murray's pamphlet to the study of the profession, as recording an operation of great credit, of much promise, and of high physiological interest.

THE BRAIN AND SPINAL CORD IN DUCHENNE'S PARALYSIS.

Sooner than this we should have noticed a short paper by Mr. Kesteven in the *Journal of Mental Science* for January, in which he describes the appearances met with in the brain and spinal cord of a boy who died from pleuro-pneumonia, but who was the subject both of imbecility and Duchenne's, or the pseudo-hypertrophic, muscular paralysis. The paper is important for two reasons. First, because of the scarcity of examinations of the nervous centres in this rare and peculiar disease, this being the first. Previous observations have yielded no positive results as to the state of the nervous centres. The second reason is, that Mr. Kesteven is one of the few microscopists capable of making such an examination. The muscles of the calf and left ventricle were examined, and the tissue was found in the state described as the characteristic appearance of this disease. "The muscular substance is pale, almost white, and very greasy. The superabundance of fat is evident to the naked eye....... The muscular fibres present the ordinary striation, but less distinctly than usual. The ultimate fibres are pale, and separated by a large increase of areolar and fibrous tissues," giving the double result of a want of power and an apparent increase in the bulk of the muscles.

Mr. Ketseven found two morbid appearances in the brain and spinal cord. First, dilatation of the perivascular canals throughout the brain and spinal cord; and, secondly, numerous circumscribed spots of granular degeneration of the nerve substance. The dilatation of the perivascular canals was observable throughout the brain and spinal cord. The exact import of this appearance is still a matter of debate among pathologists. The spots of granular degeneration were irregularly scattered in the white substance adjoining the grey matter of the convolutions. Very few were noticed in the grey matter itself. The form of these spots was generally circular, some few were lobulated. Mr. Kesteven says, "they are evidently spaces caused by loss of cerebral tissue replaced by morbid matter." They were few in the corpus striatum and thalamus opticus, as also in the medulla oblongata and spinal cord. It would be premature to consider these lesions as essentially connected with the pseudo-hypertrophic muscular paralysis. The patient was imbecile in this case, which is not usual, and it is probable that the lesions of the cerebro-spinal centres are to be associated rather with this condition than with the paralysis. Mr. Kesteven will do good service by multiplying such observations as occasion may offer.

RELAPSING FEVER IN CARLISLE.

SEVERAL of the cases of relapsing fever observed in Carlisle, it would appear, are very characteristic. Persons while engaged at buisness are suddenly seized with headache, pains in the epigastric region, back, and limbs, with rigors, and with severe vomiting, which obstinately continues for some days. A reaction shortly follows the chief symptoms, there being a hot, dry skin, great thirst, full quick pulse (which soon rises to from 120 to 150 per minute), little or no sleep for two or three days and nights, general restlessness, hurried suppressed breathing, face suffused and expression anxious, some feeling of prostration, impaired appetite, giddiness, and intolerance of light and sound. The skin assumes a bronzed hue, or jaundice may appear. Sweating, at first slight, becomes profuse. The tongue generally continues moist, although a white fur covers it; occasionally, however, a dry brown line runs along the centre. The bowels are confined. The urine is either suppressed or scanty and high-colored; and when allowed to rest for a short time, half or more of the entire volume may consist of deposit. There is enlargement of the liver. Delirium manifests itself during some part of the disease. The eyeballs are affected in some instances. Towards the end of a week from the commencement of the disease, as the symptoms mentioned greatly increase in severity, a crisis ensues; it may be by sweating which saturates the bedclothes around the patient, by a free flow of urine, and by several loose motions of the bowels. To the patient recovery seems so complete that next day after the crisis he is up, and in the course of three or four days, without the permission of his medical man, may go out for a walk or resume business. At the close of an apyrectic week or so of happiness there is a *relapse* of all the former symptoms. This second attack is milder and of shorter duration than the former. A second apyrectic interval occurs, and a *second relapse*, which may be more grave than the primary attack. Those affected by the disease are the improperly and ill-fed people who live in dirty, crowded, badly ventilated houses.

SEARCHING FOR BULLETS.

THE ingenuity of surgical mechanicians has been greatly exercised, since the commencement of the war, in endeavors to improve the means at the disposal of surgeons for discovering metallic projectiles when they are buried in the tissues of the human body. When a ball or a fragment of a shell has taken a tortuous course through soft parts, and still more when it is buried in bone, or among the bones of the wrist or ankle, the difficulties of the surgeon are often very great. The case of Garibaldi and the porcelain-tipped probe of Nélaton will be fresh in the recollection of our readers; and military surgeons have often been compelled to remain long in doubt as to whether a bullet was present in a wound or not, and also as to the metallic or non-metallic nature of some buried substance that could be felt by a probe. A French surgeon, Dr. Lecomte, has contrived an instrument by which an uncertainty of the latter kind may generally be solved. It consists of a long and slender pair of canula forceps, which form a blunt-pointed probe when closed. By withdrawing the canula the fine blades separate by their elasticity, and embrace a portion of the substance against which they are pressed. Each blade has a termination like that of gouge forceps, and when the two are drawn back within the canula they bring away for examination some small portion of any material or tissue which they may have enclosed.

The well-known instrument maker, Mr. Krohne, has applied a galvanometer, not larger than a watch, to determine whether any buried substance is or is not metallic. Conducting cords connect the galvanometer with common bullet-forceps, and the needle is deflected as soon as any metallic substance is grasped between the blades. For wounds which are too narrow to admit of the introduction of forceps, he has contrived a sound of caoutchouc, containing two insulated wires, which project a short distance beyond its extremity. The external ends of these wires are connected with the galvanometer; and the needle is deflected as soon as both the points touch metal.

METAMORPHOSIS OF TISSUE DURING FASTING.

AT a recent meeting of the Naturwissenschaftlichen Klasse of the Viennese Academy of Sciences, Prof. Seegen communicated a series of investigations upon the metamorphosis of albumen during fasting. The subject of his experiments was a young girl, who, in consequence of a stricture of the œsophagus, was only able to consume very small quantities of nourishment. During a whole month the daily ingesta amounted to but 35 grammes of milk, and about 20 c.c. of water. A teaspoonful of this mixture was taken at intervals of about an hour. After lasting for four weeks the difficulty of swallowing gradually disappeared, and the quantity of milk swallowed rose to 210 grammes per diem. The most important results obtained were the following:—1. The quantity of urine excreted daily amounted to 185 c.c. It was of very dark color, possessed a strong acid reaction, and frequently deposited a considerable quantity of urates. 2. The amount of urea excreted daily, on an average of twelve days, was 8·9 grammes = 4·1 N. The amount of N. ingested with the milk was 0·29 gramme; the excess of N. excreted, therefore, amounted to 3·8 grammes. This quantity of nitrogen is contained in about 25 grammes of dry albumen, and the patient must thus have used up that weight of the dry albumen of her own body. The chief tissue furnishing this would of course be the muscles, and if that amount of dry albumen be calculated as coming from fresh muscle, 112 grms. of the latter would be used up. 3. The excretion of water is not covered by the water of the metamorphosed tissue. The organism, therefore, is dryer or poorer in water during fasting. 4. With increased supply of food the excretion of water through the urine rose, whilst the excretion of urea remained almost unchanged. 5. The metamorphosis of the albuminates during fasting, so far as they are represented by the excretory products of the urine, bears the proportion to the normal metamorphosis of 1 : 4 or 1 : 5.

THE PHYSIOLOGICAL ACTION OF CONIA.

THE following observations of M. Verigo on Conia appear in the *Centralblatt* (No. 2, 1871), translated from the Russian *Archiv für Gerichtliche Medizin*. The experiments were made upon man, frogs, rabbits, and dogs. 1. Conia acts most strongly upon the spinal cord, affecting especially the motor nerve-fibres. 2. This action is exhibited in frogs by the phenomena of paralysis, without any trace of convulsion, whatever the dose of the poison. In mammals, on the other hand, the most violent convulsions occur after large (lethal) doses of the poison, whilst after small or non-lethal doses parlysis of the extremities only occurs. 3. The phenomena of paralysis proceed from the spinal cord to the peripheric system of the motor nerves, which therefore first become affected after the cord itself. 4. The brain appears to be but little affected by conia. 5. The sensory nerves are scarcely at all affected. 6. Administered in small doses, conia retards respiration; and in large doses may altogether paralyse the respiratory acts, which depend not, as Kölliker supposed, upon an affection of the peripheric nerves, but upon paralysis of the spinal cord. 7. The convulsions produced in mammals by conia form a tolerably certain indication of the fatal issue of the case in which it has been administered. They constitute a symptom of the poisonous action of the drug, and do not depend upon paralysis of the respiration. 8. The blood does not appear to undergo any alteration, the corpuscles at any rate retaining their capability of absorbing oxygen. 9. Conia exhibits no action upon the heart or upon the pulse. 10. It depresses the temperature of the body, and to a greater extent the more distinctly the paretic symptoms are produced. Its action on the pupil is not constant. 11. The action of conia is more strongly and more rapidly expressed when it is injected directly into the veins, more feebly when it is injected into the stomach, or subcutaneously injected. In the two latter cases the action is identical. 12. Conia has no influence on the quality or the quantity of the urine. 13. When applied externally it only produces slight itching and redness. 14. Post-mortem examination shows no appearances characteristic of poisoning with this drug.

HYDATID OF THE LUNG.

THIS is so rare a disease in this country that most practitioners have never seen it. But it seems to be very common in Australia, if we may judge from an interesting paper on the subject by Dr. L. D. Bird, of Melbourne, read before the Medical Society of Victoria, and published in the March number of the *Australian Medical Journal.* The most common site of pulmonary hydatids is the base of the lung. If the cyst is small or of moderate size, it may occasion no symptoms, and remain unnoticed; when symptoms do occur they are those of mechanical pressure or irritation. The physical signs vary according to the size and locality of the sac. Unless the tumour infringe on the chest-wall the percussion-note is not altered, but respiration is harsh and puerile or defective. The rarity of visible venous engorgement is, in Dr. Bird's opinion, a feature which distinguishes the case from one of intra-thoracic cancer. If the cyst has originated near the surface of the lung, and is large enough to press on the chest-wall, the limited dulness and other physical signs of fluid will be noticed. The case is to be differentiated from pleurisy, abscess, or phthisis by careful limitation of dulness, the situation of it, and the symptoms and general history of the case. The existence in the sputum of echinococci and portions of cyst would of course be verifying. But this evidence is not available in the early stages of the disease. Hydatids and phthisis often co-exist, and it is not always possible to pronounce a positive diagnosis. Dr. Bird claims credit for Victorian surgeons of showing the propriety and harmlessness of tapping these cysts in the lung. In Dr. Bird's experience the first tapping, followed by medicines calculated further to injure the vitality of the parasite, of which bromide or iodide of potassium and kamela are preferred, is so often successful that he has ceased to take notes of such cases. A discussion followed the reading of the paper. There seemed but one opinion as to the frequency of the disease in the colony, and it was generally attributed to the pollution of drinking-water by the excreta of dogs containing the ova of tænia.

ALBUMEN.

THE importance of a knowledge of the chemical structure of albumen is so great that any new facts connected with its chemical history are of interest. M. Loew has recently made a nitro-substitution compound of albumen, to which he has given the name "hexanitro-albumen-sulphonic acid." This compound is prepared as follows:—Ninety cub. centim. of fuming nitric acid are mixed with 270 cub. centim. of concentrated sulphuric acid, and the acid mixture cooled. To it are next added gradually, in small portions at a time, 30 grammes of finely-powdered albumen. The albumen slowly dissolves without disengagement of nitrous fumes; and the resulting solution, which must be kept cool, is allowed to stand for about ten hours, and then poured into about fifteen times its volume of cold water. A voluminous precipitate is produced; and this is to be filtered, washed with warm water, and dried. In this manner a powder of a light-yellow color, and slightly bitter taste, is obtained; and this is hexanitro-albumen-sulphonic acid—

$$C_{72}\ H_{101}\ (No_2)_6\ SO_2{}'OH\ N_{18}\ SO_{22}.$$

It is soluble in dilute alkalies, forming a reddish solution. Reducing agents occasion replacement of $(No_2)_6$ by $(NH_2)_6$, yielding hexamido-albumen-sulphonic acid. M. Loew has also obtained albumen-sulphonic acid by the action of concentrated sulphuric acid on albumen. The formula for albumen itself which M. Loew adopts is $C_{72}\ H_{108}\ N_{18}\ SO_{22}$; and on inspection it will be understood that the nitro-compound above described is derived from it by substituting $(No_2)_6$, for H_6, and by adding SO_3. One point in the history of the new compound still requires to be cleared up—the yield of nitro-compound is not more than two-thirds of that required by the equation.

THE FLY IN ITS SANITARY ASPECTS.

No wonder that "a laugh" was evoked a few days ago in the House of Commons when Sir John

Lubbock gave the following extract from one of the books used in elementary schools: "The fly keeps the warm air pure and wholesome by its swift and zigzag flight." Such a statement is alone sufficient to justify the assertion of the speaker—himself, by the way, no mean authority on insects and their habits—that such books were "full of ambiguities and errors."

Apart from the consideration that the fly which is about to become a mother must frequently alight upon some decomposing matter in order to find suitable pasture for its maggot-progeny on its emergence from the egg, there can be no doubt that these insects, far from keeping the air pure and wholesome, are frequently the carries of that which is impure and unwholesome—notably the secretions from unhealthy wounds. Anyone who has been in a war-hospital in the summer months will have had this brought prominently not only before, but may be into, his eyes. The ophthalmia, too, which is said to be endemic in Egypt, must in some measure be kept a-going and be in some degree aggravated by the swarms of flies which the lazy dwellers on that soil do not bestir themselves to brush away from their constant station on their bleared eyelids. He who has witnessed or who has only read of such things, spite of the assurance of purity of intention on the part of the flies, will, when watching them in their circling gambols beneath the ceiling of his chamber, far from looking upon them as dipterous angels dancing attendance on Hygeia, regard them rather in the light of winged sponges speeding hither and thither to carry out the foul behests of Contagion.

ANATOMICO-ANTHROPOLOGICAL OBSERVATIONS ON THE BODY OF A NEGRO.

Under this heading a paper appears in the January number of the *Journal of Anthropology*, by Dr. Kopernicki, of Cracow, giving the results of a very careful and complete investigation of the body of a fine robust negro, aged thirty-five years, probably born at Darfour or Kordofan. Passing over the notes of the skin, hair, and muscles, we find that the weight of the brain, deprived of the membranes, was 955 grammes, of which 480 grammes belonged to the right hemisphere, and 475 to the left. The cerebellum, with the annular protuberance and the medulla oblongata, not deprived of its membranes, weighed 150 grammes. The entire encephalon weighed 1105 grammes (equal to 39 ounces avoidupois, a very low weight). Careful comparative measurements which are given of numerous nerves with those of a Valaque prove the truth of Soemmerring's statement, that the nerves of negroes are *larger* than those of whites relatively to the mass of the brain. The larynx was relatively larger, the penis of extraordinary volume. A point which is still very unsettled in the anatomy of negroes is here noticed—namely, the color of cicatrices. Camper, Bichat, and Cruveilhier, maintained that cicatrices are always white, whatsoever the color of the skin may be. On the other hand, Cooper, Hunter, Virey, and others affirm that cicatrices have the same color as the skin, and even that they become deeper in color. The examination of this particular negro appears to furnish unequivocal proof that the latter statement is correct, and that cicatrices amongst negroes become as deeply colored as their skin, and this independently of the influence of media.

THE AEROCONISCOPE.

Several modes have been suggested for collecting the organic dust that we now know, from Tyndall's experiments, to be so rarely absent from the air. One of the most ingenious of these, invented by Dr. R. L. Maddox, was described in the *Monthly Journal of the Microscopical Society* during the summer of last year; and Dr. Maddox now publishes in Dr. Lawson's *Journal* the results of his experiments. The instrument consists essentially of a thin glass cover, so cemented to a slide as to leave a small channel for the passage of air to the central space, the floor of which is covered with a mixture of treacle and a little acetate of potash in distilled water, on which the spores collected may germinate; the whole is mounted on a base which turns like a vane with the wind, the mouth of the channel being always directed windward. Dr. Maddox states that there appears to be no relation between the number of the germs and the set of the wind in any given direction, nor can any relation be established between the force of the wind and the quantity of spores. A gentle breeze was the most productive. The number of spores collected on a space of about one-sixth of an inch square varied from 250 to 0. The majority of the spores were small, pale, olive-colored, and oval, mingled with darker-colored ones, and both were apparently some form of smut. The months of July and August were most propitious for collecting. In some cases the spores began to germinate on the second day, others not before the twentieth day, and many did not germinate at all; nor could it be said, without trial, which was or which was not capable of growth or living. Dr. Maddox furnishes two plates illustrating a great variety of forms, but does not attempt to name them.

HYPODERMIC INJECTION OF QUININE.

This subject continues to excite attention, if we may judge from the communications that appear in our contemporary the *Indian Medical Gazette*. The civil surgeon of Ahmedabad states that he has administered quinine by way of hypodermic injection for upwards of two years, and over a hundred times; and that this experience enables him to speak of the advantages of this method, in point of economy and efficacy, with a certain degree of confidence. The dose he has generally employed has varied from two grains and a half to three grains, dissolved in four minims of dilute sulphuric acid and fifteen minims of water. In most cases the first dose was quite sufficient to put a stop to any further attack of fever; and in some it has benefited the patient by prolonging the period of intermission. His experience of it in remittent fever is much more limited, but, on the whole, favorable. But, above all, the most markedly beneficial effects of the hypodermic injection of quinine may be observed in cases of brow-ague or hemicrania of malarious origin. In no instance does he remember its having failed, either in his own or his assistant's hands, to give rapid relief, which in some cases proved to be of a permanent character where only one injection had been employed.

PAROCHIAL CHEMISTRY.

THAT chloride of calcium and many other salts absorb water from the air, and that aqueous solutions of such salts will not dry up at the ordinary temperature of the atmosphere, even in summer, are facts so certain and so familiar as to have welnigh acquired, in the estimation of chemists, the rank of necessary truth.

We learn that a civil engineer in the employ of one of the London vestries has made the discovery that a solution of deliquescent chlorides dries up as fast and as completely as pure water when exposed to the action of the summer sun. The locality in which so important an observation was made is the parish of St. George's, the occasion being the laying down of Mr. Cooper's deliquescent salts in the streets of that parish. We understand that the laborers employed under the distinguished engineer in question have made the still more remarkable observation that these deliquescent salts accelerate the evaporation of water. It appears that that which passes current among chemists relative to the properties of deliquescent salts is regarded by the eminent engineer in question as purely theoretical, as distinguished from his own observations and those of his men, who observe practical facts.

GRATITUDE FOR VACCINATION.

A CORRESPONDENT calls attention in *The Times* to the fact that the only living relative of the discoverer of vaccination bearing his name is now living on 10*s.* a week, in a poor cottage in the parish of Berkeley. We called attention to this subject two years ago, in the hope that something might be done towards relieving his poverty, but our efforts, unhappily, met with small success. Now that the leading journal has given publicity to this subject we trust that something may be done for the descendant of a man whose claims on the gratitude of the world were never greater than at present, when everyone gifted with common sense is resorting to vaccination to avert an attack of small-pox. We will gladly receive any contribution for the purpose.

Correspondence.

"Audi alteram partem."

ON THE LOCAL ORIGIN OF CANCEROUS AND OTHER TUMOURS.

To the Editor of THE LANCET.

SIR,—Professor Huxley, speaking of "xenogenesis," says: We have the best examples of it in structures in which, under the influence of certain external conditions, elements of the body, that should have developed in due subordination to its general plan, set up for themselves, and apply to their own purposes the nourishment which they receive—e.g., in corns, warts, tumours, cancers, &c., all which are parasitic and resemble the parasite worm in everything but form." Virchow remarks that "the vessels have no direct influence in the formation of tumours"; and Mr. Campbell de Morgan, in his paper on the origin of cancer, says: "In all cases I should regard the morbid product as the result of undirected or ill-directed growth-force, the elements of the structure, thus formed, possessing, as the natural elements do, the tendency to reproduce their like; consequently, I should consider that a special condition of blood had no more to do with the formation of a cancer than it had to do with a lipoma or an adenoid." These authorities, therefore, maintain that it is not the blood that takes the initiative, so to speak, in the formation of tumours, but that the normal elements, under local irritation or stimulus, "set up for themselves," and form peculiar growths; that, in short, *the part,* and not the blood, is the *primum mobile* in the formation of cancerous and other tumours; and it seems to me that these views are supported by many familiar facts. We all admit that in spring the development of cells in the terminal buds of trees, under the external stimuli of heat and light, precedes and determines the upward flow of the sap; that a *vis a fronte*—not a *vis a tergo*—begins and maintains growth and development. Again, nut-galls and other excrescences and nodules in and upon the trunks, branches, and leaves of trees undoubtedly have an origin purely local, and do not affect the general health of the tree, any more than corns, warts, and lipomatous tumours affect that of the human subject. In the development of the ovum, I imagine, there is a period during which it is a purely local affair, independent of blood and bloodvessels. A purely local and accidental circumstance, such as the friction of a pipe on the lip, a strain, or a blow, will often determine the formation of a cancerous growth. The same accident, we know, would not do this in all persons; this fact, however, does not show that the difference is in the blood, but only that certain persons are predisposed (whatever this may mean) to certain things. The tendency may be purely local—inherent in the tissue, as in the case of warts, and it is mere assumption to say they have their origin in a peculiar state of the blood. Then, as Mr. De Morgan has shown, persons with cancer are generally fat and well nourished until and long after some local cause has set up a cancerous growth. Their blood is clearly not the first thing amiss with them; blood-poisoning follows later on, when the condition of the tumour is such that cancer-cells make their way into the circulation, and are carried from place to place, just as foul ulcers, at first purely local, may vitiate the blood and poison the system. I had a case, this year, in which the cancer seemed to be set up by a strain upon the left chest and shoulder. The man had always been remarkably robust, well-nourished, and fresh-colored, a "first-class life," as we should say, for insurance, up to the time of the strain, and for some time afterwards; so that, but for the strain, he might have lived to seventy-five or eighty, instead of sixty-two. After that he complained of stiffness or pain in the shoulder, pain in the left upper ribs in front, which were so tender that he could not bear percussion after the second visit. There were dulness of the upper third of the lung in front and behind, slight expectoration of blood-stained mucus, and a scirrhous nodule on the sternum. He complained of those spinal, pelvic, and sciatic pains described by Mr. De Morgan, and latterly he had paralysis of bladder and rectum. Unfortunately no post-mortem was allowed, but there is little doubt this man had cancer of the lung, and probably there was cancer of the ribs and vertebræ also. He was the type of a healthy man up to the time of the accident, which (and not the state of the blood) evidently gave rise to the cancerous growths.

I am, Sir, your obedient servant,
D. Hooper, B.A. & M.B.

Trinity-square, S.E., August 5th, 1871.

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CICATRISATION OF LARGE ULCERS.

To the Editor of The Lancet.

Sir,—I have had under my care lately a man with an extensive lacerated wound of the hand and wrist. A large flap of skin was nearly detached from the front of the wrist and palm of the hand, and, being reflected, exposed the deep fascia to the extent of about four square inches. So severe was the laceration and bruising of this flap that I had no hope of its keeping its vitality. I, however, to give it a chance, laid it down, and secured it with three stitches, and for four or five days I thought it would, after all, adhere; but when the wound began to suppurate freely, and granulations to spring up, the entire piece sloughed and came away, leaving an extensive granulating wound. But the remarkable and, I think, interesting point in the case is, that on the second or third day after this, three separate, shining, bluish points of cicatrisation appeared towards the middle of the wound; though at first not larger than pins' heads, they are rapidly growing and extending, and promise to shorten much the duration of the healing process. These minute points or islands of skin seemed at first exactly like those produced in successful cases of the (now) well-known operation of skin-grafting.

I shall be glad if you will insert these brief notes of the case in your valuable journal, as some of your correspondents may be able to account satisfactorily for the appearance of these "skin islands," in my experience very unusual.

Yours truly,
Thomas Law Webb.

Coalbrookdale, Salop, July 26th, 1871.

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DR. SAYRE'S OPERATION.

To the Editor of The Lancet.

Sir,—I am very sorry to see in your previous number, a letter from Mr. Barwell on "Dr. Sayre's Subperiosteal Exsection of the Hip-joint." He seems to have completely misunderstood the entire plan of my operation, and has most certainly failed altogether to perform it in such a manner as would give it a fair chance of success. I have discussed some of the questions raised in his letter in a lecture which the surgeons of St. Bartholomew's and the Children's Hospitals did me the honor to request me to give. I would beg to refer Mr. Barwell and your readers generally to the report of it, which will appear elsewhere.

Mr. Barwell has had my extension splint for several years, but has been unsuccessful in its use because he applied it in a reverse position. He seems equally unfortunate in comprehending my method of subperiosteal exsection.

I am, Sir, very respectfully yours,
Lewis A. Sayre.

Bath Hotel, Piccadilly, July 17th, 1871.

THE CHEMISTRY OF TEA.

The May number of Liebig's *Annalen* contains a paper, by Zöller, on Tea, from which we abstract the following:—

It used to be believed that the different kinds of tea came from different species of the tea-plant; but the researches of Siebold, which have been confirmed by Fortune, have demonstrated that one and the same plant, *Thea siensis*, modified by climate, soil, and cultivation, furnishes all the tea which is in the market. Differences in the manner of preparing the leaves, and differences in the age of the leaves, also affect the quality of the tea; giving rise to differences in the commercial article.

Touching the influence of climate, it is worthy of note that the tea-plant will bear a wide range of climatic variation without suffering serious deterioration. The richness of the soil and the mode of cultivation, however, exercise a paramount influence on the quality of the tea. In this respect the tea-plant is like the tobacca-plant or the mulberry-tree.

Again, the method of preparation of the leaves is a comparatively trivial matter, whilst the age of the leaves is of prime importance. The youngest leaves give the best tea. Hence the explanation of the high price of choice varieties of tea. Choice teas consist of the youngest leaves, and to produce any considerable weight of young leaves a great number of plants is required; whilst the same weight of old or full-grown leaves is produced by a comparatively small number of plants. Zöller shows that the age of tea-leaves may be ascertained by a chemical examination of the ash left on incinerating them. As the leaves grow they lose in potash and phosphoric acid, both absolutely and relatively, and gain in lime and silica. Examinations made at periods fourteen days asunder exhibit these phenomena with sufficient distinctness. In the practical examination of teas there is, therefore, a very simple and valuable rule: much potash and phosphoric acid together with little lime and silica means good tea, and the reverse bad tea.

Having received a splendid specimen of tea grown in the Himalayas by a friend of Baron Liebig's, Zöller set to work and made a chemical investigation of it, and obtained the following results. In 100 parts of the tea there were 4·95 parts of moisture, and 5·63 parts of ash. The ash contained in 100 parts—

Potash	39·22
Soda	0·65
Magnesia	6·47
Lime	4·24
Oxide of Iron	4·38
Protoxide of Manganese	1·03
Phosphoric acid	14·55
Sulphuric acid	trace
Chlorine	0·81
Silica	4·35
Carbonic acid	24·30
Total	100·00

These numbers show very plainly high potash and phosphoric acid, together with low lime and silica. Zöller also made an infusion of this excellent specimen of tea, and communicates some interesting particulars. 100 grammes of the leaves was infused for a quarter of an hour in 3 litres of boiling distilled water, and the liquid poured off. Then a second 3 litres of boiling water was poured on the leaves and allowed to stand for a quarter of an hour. The 6 litres of infusion were subsequently evaporated to dryness, and the residue dried at 100° Cent. and weighed. This dry residue was found to amount to 36·26 per cent. of the original tea-leaves; the remark being made, that in the above described operation the tea-leaves could not have been perfectly exhausted of soluble matter, and that the real proportion of soluble matter in the leaves must have been still higher than the experiment indicated.

The tea-leaves in their ordinary, or air-dried, condition contained 5·38 per cent. of nitrogen. The percentage of thein in the leaves was found to be 4·94. Theobromine was also detected.

A comparison of the analysis of the original tea-leaves with that of the tea-leaves after they have been exhausted with boiling water is given. After extraction, the percentage of potash in the ash is 7·34, whereas, before extraction, the percentage of potash was 39·22; showing how the analysis of the ash may be employed as a criterion to recognise adulteration of tea with spent tea-leaves. A point insisted upon in this interesting memoir is, that the greater proportion of the nitrogenous material in tea is not present in the form of thein. Peligot has shown that this other nitrogenous materal is a protein compound, being a substance like casein. Tea is therefore, to some extent, food, and Zöller points out that 100 parts of Hímalaya tea contain, in addition to the 4·94 parts of thein, 13·7 parts of protein compounds.

Foreign Gleanings.

OVARIOTOMY IN PARIS.

M. **Panas** presented a patient at a late meeting of the Surgical Society of Paris (June 14th, 1871) upon whom he had performed ovariotomy at the St. Louis Hospital. The operation was performed in a cottage built within the walls of the hospital, the surgeon removing, besides the right ovary, the left Fallopian tube and a fibrous tumour of the uterus. M. Depaul remarked that ovarian cysts are often connected with gestation, and cited a case in which M. Richet, after tapping the cyst, found that the woman was pregnant. After her confinement no refilling of the cyst took place. M. Depaul added that M. Legouest had seen Mr. Spencer Wells perform ovariotomy upon a woman four months pregnant. The patient did well, and the gestation proceeded. It will be a question whether the pressure exerted by the developing uterus has had a great share in the recovery of M. Richet's patient. M. Panas mentioned a similar case, and M. Guéniot remarked that pregnant women suffering from an ovarian cyst often die after tapping, and stated that an English surgeon made a mistake four times. In one case he removed the cyst; rupture of the uterus occurred, the Cæsarean operation was performed, and the patient recovered. M. Guéniot mentioned no name.

CONTAGION BY VOLATILE VIRULENT MATTER.

The Academy of Sciences of Paris heard (July 10th, 1871) a paper of M. Chauveau, of Lyons, the eminent veterinarian, describing experiments which prove that the fluid evaporated from virulent matter fails to convey disease by inoculation, whilst the matter itself succeeds. M. Chauveau concludes that the contagious principles are not floating in the atmosphere in the shape of gas or vapor, but that they are always adherent to some solid matter which is taken up by the gastric mucous membrane. Contagion at a distance takes place in this manner. In the rinderpest, for instance, the conveyance of the disease is more frequent and more rapid in confined spaces than in the open air. One of the experiments is performed thus: Virulent matter is poured into a capsule, which is placed on a piece of glass, and the whole covered with a transparent bell. Under the glass is a sand bath, which promotes gentle evaporation. To facilitate condensation, the bell is covered with cotton wool, on which ether is now and then dropped. Some fluid now fixes on the inner aspect of the bell, and is obtained by means of a pipette. The liquid is then inoculated, as also the actual virulent matter in the capsule. The effects with the latter are positive, and negative with the former.

GUNSHOT WOUNDS OF THE LOWER EXTREMITIES.

M. Paul Berger has published several cases in *L'Union Médicale* (Nos. 45 and 46, 1871) of severe gunshot wounds of the knee, femur, &c., in which good results were obtained without deep suppuration. The practical hints derivable from these cases are as follow:—

1. Deep gunshot wounds of the knee may cicatrise pretty quickly, and very simply, if the bones are not too much shattered, or when the patella alone is fractured.

2. The same holds good for fractures of the femur at the middle or upper third, when the tract is long and narrow, and not much torn or contused, the bone being evenly broken.

3. The presence of the ball in the wound is not an absolute obstacle to the cure.

4. In such cases the following measures should be avoided: (*a*) immediate exploring of the tract with the finger or instruments; (*b*) preventive slitting up of the tract; (*c*) extraction and search after foreign bodies which may lie in the wound before suppuration is established.

5. Perfect occlusion should not be had recourse to; emollient and soothing applications are to be preferred.

EXTRACTION OF CATARACT; NEW MODE OF MAKING THE CORNEAL SECTION.

M. Galezowski lately presented to the Academy of

Medicine of Paris (July 11th, 1871), an elbowed knife, wherewith he makes his incision preparatory to extraction. The operator makes a semilunar cut through sclerotic and cornea, on the outer margin of the latter, and carried a little distance under the conjunctiva. Instead of cutting as usual from behind forwards, the knife runs downwards, and thus a conjunctival flap is obtained. It is thought that this flap favors union by first intention. The operation is thus confined to the sides of the cornea. M. Galezowski states that he has found this method extremely useful, especially in large and hard cataract.

DETECTION OF XANTHINE IN URINARY CALCULI.

M. Lebon showed, at a late meeting of the Academy of Sciences of Paris (July 3rd, 1871), a calculus which M. Cruveilhier, Jun., had asked him to analyse. The outer layer was composed of phosphate of lime mixed with ammoniaco-magnesian phosphates only one-thirtieth of an inch thick. The next layer consisted of oxalate of lime, and was as thin as the first, but the bulk of the stone was made up of xanthine, and a small proportion of urate of lime. This nucleus, dissolved in hydrochloric acid, yielded beautiful crystals of hydrochlorate of xanthine in hexagonal lamellæ. The usual mode of detecting xanthine is excellent when the latter is pure; but when it is mixed with lithic acid or lithates, as is often the case, the common method is not satisfactory. M. Lebon has found the following procedure useful for separating lithic acid from the xanthine, being founded upon the solubility in hydrochloric acid, and the insolubility of lithic acid, in the same liquid. Let, therefore, a fragment of the stone, reduced to powder, be boiled in hydrochloric acid, and the fluid be filtered. The insoluble portion of the latter is lithic acid, and the substance held in solution is xanthine. The nature of both substances may then be made out very easily by watching their usual reactions.

RUPTURE OF THE HEART.

This unusual cause of death was observed at the Asylum of Evreux, France, by M. Védié. The patient, a woman affected with dementia, was admitted March 5th, 1870. The pulse was very irregular, but no abnormal cardiac murmur was heard. She died suddenly on the 3rd of June, after being prostrated some twenty-four hours, a state contrasting strongly with her usual agitation. On proceeding to the autopsy the limbs were found cyanosed, and on making a small opening into the pericardium a jet of black blood took place. When this sac had been carefully slit up, the heart was found surrounded by a large clot, the thickness being greater at the base than at the apex. On removing the clot, a hole a little larger than a shilling, round and regular, was found on the anterior surface of the right auricle. The hole was situated on the right third of a reddish-brown spot, of a square shape, and seemed to be owing to a softening of the muscular fibres. The whole heart was thin and fatty. There was an aortic insufficiency from cretaceous deposits on the valves, but, nevertheless, no regurgitating bruit had been heard.—*Gazette des Hôpitaux*, July 13th, 1871.

PARACENTESIS THORACIS IN PLEURITIC EFFUSION.

M. Constantin Paul has published, in the *Bulletin de Thérap.* (July 30th, 1871), eight very interesting cases, in which it is plainly evident that early tapping of the chest in undoubted pleuritic effusion is far more favorable than diaphoretics, derivatives, &c. The tapping, as was the case with Trousseau, is not used as a mere palliative, but in view of an eventual cure. M. Paul uses Reybard's instrument, which is fitted to a bag of goldbeater's skin, and has found that no air penetrates the chest.

REGENERATION OF THE SPINAL MARROW.

Messrs. Masius and Van Lair, says the *Journal de Méd.* of Brussels, October, 1870, have removed a piece of the spinal marrow from frogs. Motor and sensory power, abolished for a time, returned when the two ends of the medulla had been brought closer by an intermediate substance. It would appear that the same phenomenon has been observed upon the guinea-pig and the rabbit.

STRANGULATED DIAPHRAGMATIC HERNIA; DEATH; AUTOPSY.

M. Védié, house-physician to the Asylum of Evreux, France, has published such a case in the *Gaz. des Hôpitaux*, No. 38, 1871. The patient was affected with mania, and died with all the signs of internal obstruction. On a post-mortem examination the angle between the transverse and descending colon was found filled with gas, and protruding through the diaphragm. The stomach was pushed to the right side under the liver, and the small intestines, together with the ascending and transverse colon, both enormously dilated, lay on the descending colon. The cæcum was enlarged to the size of an ordinary stomach, whilst, on the contrary, the patient's stomach had shrunk to the size of the normal cæcum. Adhesions had formed between the lower portions of the herniated knuckle and the diaphragm, the opening in the latter being the size of a half crown, and lying between its fibres.

News Items, Medical Facts, &c.

The Cultivation of the Poppy in India.—In a statement furnished to Parliament showing the moral and material progress of India for 1869–70, there occur the following statements regarding the opium trade of that country:—"The belief that the cultivation of the poppy is on the increase in China caused a falling off of £1,150,000 in the net revenue derived from opium; the gross realisations from this drug in 1869–70 were £5,594,137; the net revenue nearly £3,780,000; the number of chests sold were 45,680, at an average price of about £119 17*s.* 9*d.* per chest. The number of acres under cultivation in 1869–70 was 801,160, or about 38,000 acres more than in 1868–69. The out-turn for the market of 1871 was estimated at 54,072 chests, and the further extension of cultivation which has been sanctioned will raise the annual provision, it is estimated, to 60,000 chests.

Oppolzer's Successor.—The Council of the Univerversity of Vienna have elected Dr. Bamberger to the chair of clinical medicine, left vacant by the death of Oppolzer. The Minister of Public Instruction, however, requested the Council to cancel this election, as Bamberger is not an Austrian. The professors have sent in a resolution, stating that Dr. Bamberger is the only man fit to succeed Oppolzer.

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Lettsomian Lectures

ON

EXCISIONAL SURGERY OF THE JOINTS FOR DISEASE.

Delivered before the Medical Society of London.

By Frederick James Gant, F.R.C.S.,

Surgeon to the Royal Free Hospital.

LECTURE III.—Part I.

THE ELBOW-JOINT.

Mr. President and Fellows.—Passing from the lower to the upper extremity, we come to another scene of joint excisions; where I shall have much to contend for, much to advocate. The general principles of excisional surgery remain the same; but they are here modified and supplemented—as in regard to the particular joints of the lower extremity—by sub-principles, relating to the conditions of disease appropriate for excision, which, with the operations themselves, their after-treatment, and results, demand careful consideration, and will therefore, I trust, fairly engage your attention. Of the three joints, elbow, shoulder, and wrist, with those of the hand, the first is most commonly affected with disease of a destructive character; and, presenting the largest field of accumulated experience, this joint claims priority of notice.

The Elbow-joint appears to be, and certainly in my own experience has been, not unfrequently amenable to treatment without operative interference, in the destructive stage of inflammatory disease, by ulceration of the articular cartilages.

The *natural cure* by anchylosis supervenes more readily, apparently, than in other joints; and fibrous union usually occurring, a movable joint and useful limb is the result.

The following case, which came under my care, is so good an example of this mode of cure, that its history seems worthy of notice:—Mrs. P——, aged forty, states (1857) that in 1840, seventeen years ago, a heavy door, slamming, struck her left elbow on the outer side. Some pain and swelling ensued, which gradually subsided. Pain, however, was felt occasionally after using the arm, during the next six years. Then the forearm gradually became bent on the arm, but the limb could be forcibly straightened. In 1855, she had rheumatic fever; the injured joint was first affected with acute pain and swelling, and other joints subsequently. The swelling of the elbow proceeded to abscess, which broke and discharged matter; leaving seven sinus openings, of which two in front and three behind the joint remained open for the next two years. During ten months of this period she could not lift her arm to her head, nor feed herself with it. In 1857, the sinuses had all closed, except one, which discharged slightly, a little below the head of the radius—a not uncommon situation of opening in disease of the elbow-joint. The patient's general health remained good, at least there was no approach to exhaustion. Having regard to the quiescent state of the joint, and the satisfactory state of the constitutional condition, it appeared probable that, if sufficient power of nutrition could be evoked, anchylosis would ensue. The result more than fulfilled my anticipation. After three months' treatment by rest, strapping with the emplastrum ammoniaci cum hydrargyro, tonics, and diet—my usual course of treatment for curable joint-disease,—fibrous anchylosis had taken place effectually, and there was limited motion in the joint. Improvement gradually continued, and the range of motion increased. In 1861, the patient could roll paste without pain or inconvenience; she could lift a nine-gallon barrel of beer and set it on "thrall," and she could make a bed, shaking the mattress or feather-bed, without affecting the elbow. Weather, or the east wind, sometimes gave her slight rheumatic twinges in the joint. In April, 1865, the joint was neither painful nor swollen; all the sinuses had firmly and permanently closed, leaving the bony outline of the natural articulation only somewhat enlarged and irregular in shape. She could flex the forearm to an acute angle with the arm, and both pronation and supination were perfect. The action of the hand and fingers completed the perfect use of the arm.

Cases such as this lead to a just appreciation of the power of nature to effect a cure in disease of the elbow-joint by anchylosis, under, of course, the favorable circumstances of proper treatment, and enable the surgeon to duly estimate the probability of a permanent result. On the other hand, such cases serve also to indicate the conditions of disease when operative interference becomes necessary in order to induce anchylosis as the successful result of excision. An analysis of cases in which the operation has been practised successfully will complete this essential knowledge of pathology. It is the guiding principles, as gathered from both these sources, that I would in the first place proceed to enunciate.

Conditions of Elbow-joint Disease appropriate for Excision.—The three conditions which severally determine the propriety of excision with regard to the joints in general are applicable to the elbow-joint.

1. Functional inutility of the limb, depending on disease of the joint having resulted in destruction of the articular cartilages, without the supervention of anchylosis, will always justify excision; care being taken that the constitutional condition shall *not*, if possible, have approached to exhaustion. But the degree of reserve power requisite for recovery is much less than after excision of the knee or hip, owing to the average period of reparation being less by one-half, or about six weeks instead of three months.

2. Osseous anchylosis, and particularly in connexion with a useless position of the limb, will also justifiy excision.

3. The structural conditions of disease pertaining to the elbow-joint, which specially affect the propriety of its excision, relate to the *extent of bone* destroyed by disease. The limits of excision of the elbow-joint are not restricted by two of the three considerations respecting the knee-joint. Thus, the length of the portions of bone removed from the elbow is comparatively unimportant, the corresponding loss of length in the arm not much impairing the use of this member eventually; nor is it of consequence, therefore, to observe the epiphysial lines as affecting the subsequent growth of the bones. But it is equally requisite in the elbow as in the knee to preserve sufficiently wide surfaces for the formation of an adequately secure union; in the one case, with ligamentous mobility; in the other, with osseous consolidation.

The removal of only a thin superficial section of the articular ends of the bones in the elbow-joint, leaving the section ends too nearly in contact, is apt to be followed by osseous union and an unsuccessful result of the operation. On the other hand, any new bone which may not unfrequently have been produced in the form of a spiculated enlargement of the articular ends *above* their diseased portions, and thereby limiting the disease, should not be included in the excision. The importance of observing this limitation of the operation is particularly urged by Mr. Butcher in his work on Operative and Conservative Surgery.

Operation.—Excision of the elbow-joint, for disease, was originally performed by Justamond, of the Westminster Hospital, in 1775, as a partial operation, in which the olecranon and two inches of the ulna were removed. Complete excision was first performed by Moreau, senior, in 1794, and by Moreau, junior, in 1797; but the operation attracted little attention until it was revived by Stansfield, Chorley, and Hey of Leeds, in 1818-19, and especially by Syme in 1830, since which period it has been more generally practised than the excision of any other joint for disease.

The operation is thus performed:—A single linear incision, longitudinally over the centre of the joint, and of sufficient length to turn out the bones, is preferable to any other, in relation to speedy recovery after operation. Other forms of incision offer certain special advantages. An H shape exposes the bones more readily, on reflecting the flaps, thus marked out, upwards and downwards; and this incision is particularly recommended by Sir W. Fergusson. A ⊣ shaped incision, with the vertical line parallel to and a little outside the ulnar nerve, allows of its being more surely guarded or drawn inwards, by a curved spatula in the hands of an assistant. In either case, the transverse line of the incision should be made across the end of the olecranon from condyle to condyle; or nearly to the inner condyle in the latter form of the incision; and thus the joint is laid open. But the single longitudinal incision is now, I believe, generally practised; and I rarely find any other more convenient. With a little detachment of the integument on either side, the knife is entered transversely above the olecranon, dividing the tendon of the triceps (the ulnar nerve being protected); the olecranon process must then be sawn off transversely, and by forcibly flexing the arm, and perhaps dividing the lateral ligaments with a light touch of the knife, the articular surfaces of the three bones are fully protruded and exposed. The articular surface of the humerus between the condyles is excised by means of a small saw; and the remaining sigmoid surface of the ulna and head of the radius in like manner, or removed with pliers, or simply gouged. The latter two bones should not be excised below the insertions of the brachialis anticus and biceps muscles: for thus the brachial artery will be protected by the intervening brachialis muscle from any fair risk of injury in removing these portions of bone. Any surrounding *outgrowth* of bone, resulting from exuberant reparative action, must not be mistaken for disease; it should not be included in the excision. The line of excision having been closed with sutures, the arm is laid semiflexed on an angular splint; or it may be placed in Mr. Christopher Heath's splint—an apparatus which combines with rest and graduated flexion or extension, graduated elongation of the limb, and entire access to the joint for dressing. To ensure the formation of flexible union, passive motion should be gradually recommenced when such reparation is established; say, in three or four weeks.

Results.—(1) *In relation to life, or the mortality.*—Three *general* conclusions may be drawn from the results of one large collection of cases, with those in the hospitals of the United Kingdom, and in the practice of individual surgeons. 1. A lower mortality than that of any joint-excision in the lower extremity; and in the upper extremity also, so far as statistics hitherto collected supply the data for comparison. 2. An average mortality of 1 in 8, or 12 per cent., or even much lower, about 1 in 15, or about 7 per cent. 3. A very different mortality in the hands of individual surgeons.

The conditions of disease, local and constitutional, in the cases selected for operation, would seem to mainly determine this difference; while the mode of performing the operation and the after-treatment would also contribute to explain it.

The collection of cases by Dr. Hodges amounts to 119; of these 15 died, 1 in 8, or 12 per cent.

Author's Collection.

Royal Infirmary, Edinburgh; period, 1865–69. (Per Mr. P. H. Watson.) Number of cases, 62; recoveries, 50; deaths, 12.

Liverpool Royal Infirmary; period, last five years. (Per Mr. W. J. Cleaver.) Number of cases, 30; recoveries, 29; deaths, 1; amputations or re-excisions, 1; recoveries, 1.

St. Bartholomew's Hospital; period, 1866–70. (Per Mr. Callender.) Number of cases, 19; recoveries, 17; deaths, 2; Amputations or re-excisions, 2; recoveries, 1; deaths, 1.

Guy's Hospital; period, 1864–69. (Per Mr. T. Bryant, from Dr. Steel, superintendent.) Number of cases, 19; recoveries, 17; deaths, 2.

Chalmers' Hospital, Edinburgh; period, last six years. (Per Mr. P. H. Watson.) Number of cases, 15; recoveries, 14; deaths, 1. Re-excision in 1 case; recovery.

London Hospital; period, last five years. (Per Mr. McCarthy.) Number of cases, 14; recoveries, 12; deaths, 2.

King's College Hospital; period, last five years. (Per the House-Surgeon). Number of cases, 12; recoveries, 11; deaths, 1.

Westminster Hospital; period, last five years. (Per Mr. F. Mason.) Number of cases, 12; recoveries, 12.

Charing-cross Hospital; period, 1860–65. (Per Mr. Hancock.) Number of cases, 8; recoveries, 8.

St. Mary's Hospital; period, last five years. (Per Mr. Gascoyen.) Number of cases, 8; recoveries, 8.

Royal Free Hospital; period, last seven years. Number of cases, 7; recoveries, 6; deaths, 1.

Royal Sea-bathing Infirmary, Margate; period, last five years. (Per Mr. J. R. Clouting.) Number of cases, 6; recoveries, 6; re-excisions, 2; recoveries, 2.

St. Thomas's Hospital; period, 1866–70. (Per Mr. F. Churchill.) Number of cases, 4; recoveries, 4.

Royal Albert Hospital, Devonport; period last five years. (Per Mr. W. P. Swain.) Number of cases, 2; recoveries, 2.

Great Northern Hospital; period, last five years. (Per Mr. J. Willis.) One case; recovery.

Compared with mortality of amputation of the arm.—By Malgaigne's statistics from the Parisian hospitals we find, of 61 cases for disease, 4 deaths resulting, or 6·5 per cent.; a *lower* mortality than that after excision of the elbow-joint. But the statistical results from University College Hospital, furnished by Mr. Erichsen, show a *far higher* mortality after amputation. Of 18 cases of amputation of the *shoulder* and arm, for disease, 5 died, or 27·7 per cent.

(2) *State of the Limb.*—Of the 104 recoveries out of 119 cases, the majority (minus 15 amputation cases) had useful limbs, as proved by the patient being able to resume his ordinary avocations; but the details given respecting the kind and extent of motions left are not exact.

The *average duration* of the process of recovery cannot be gathered from recorded cases. In about three weeks generally, passive motion may be commenced, and fibrous union be completed in six weeks—a more rapid progress by half the average period requisite for *osseous* union after excision of the corresponding joint in the lower limb, the knee.

The resulting *state of the joint* is commonly fibrous and flexible union, rarely osseous and fixed anchylosis; the former, of course, being the result desired. In an interesting case, which Mr. Syme had the opportunity of dissecting nine years after the operation of excision of the elbow for injury, the ulna was found united to the humerus by ligament, while the end of the radius was polished off, and played on the humerus and ulna, a material like cartilage being interposed. The ends of the bones of the forearm were locked in by two processes projecting downwards from the humerus, and strong lateral, and still stronger anterior and posterior, ligaments also bound them to the latter bone. Dissections of several cases, after successful excision of the elbow, may be found in Wagner on "Repair after Resection"; and it would seem that the general result is union by more or less extensible ligament. Flexion, according to M. Robert, is composed of two movements, the forearm being first drawn up to the humerus by the triceps, and then flexed by the action of the biceps. The joint becomes nearly as useful as the original articulation. Thus, in Mr. Syme's case, the man, a railway guard, could swing himself from one carriage to another while the train was in motion with the injured arm quite as easily and securely as with the other; and in one of Mr. Butcher's cases, the man could lift a bucket of water, holding four gallons, and carry it to and fro, or lift it on a table three feet high. Then again the freedom of the anchylosis for the more delicate movements of the forearm and hand was well exhibited in one of my own cases (Case 1), a milliner and dressmaker who could work with her needle readily and untiringly—a seven years' permanent result of excision.

Injury of the ulnar nerve—an occasional accident during the operation—is followed by loss of sensation in the little finger and adjoining side of the ring finger, with perhaps loss of motion and wasting of the muscles; but the sense of touch will probably return, and the other ill-consequences cease, apparently by reunion of the wounded nerve. This accident, judging from the digital paralysis, happened apparently in one of my own cases—that of the milliner just mentioned; but the symptoms passed off entirely, as the functional use of the finger showed.

Re-excision may be practised—as in the knee—when necessary, rather than resort to amputation; and even a third such attempt has, it is said, been made with good results. In the table of hospitals (219 cases), of the 197 recoveries from the primary excision, 3 only are noted as having undergone re-excision, but with no death. Of my own 5 cases, I had to re-excise 1, and with a thoroughly successful result, the patient resuming his occupation as a postman.

Secondary amputation.—Of the 104 recoveries after excision, in Hodges' collections of 119 cases, 15 of that number underwent amputation subsequently. From the collection of hospitals, we learn that, of the 197 recoveries, 3 only were subjected to amputation, with 1 fatal issue.

The following cases, in which I excised the elbow-joint for disease, are here grouped together, as exhibiting the most essential particulars relating to the question of this operation; and the permanent results are also stated. The notes from which I have drawn up these abstracts were carefully taken, excepting in the first case, by Mr. T. C. Murphy, senior house-surgeon at the Royal Free Hospital.

Typical Cases of Elbow-joint Excision.

1. Margaret R——, aged twenty-five. Chronic synovitis of traumatic origin, one year and a half's duration, one year and two months' treatment. Partial ulceration of the articular cartilages of the humerus, ulna, and radius, with semiflexed position of the limb. Excision. Recovery, with a movable joint and useful limb, in six weeks. Result known to be permanent after seven years. (For the particulars of this cases I am indebted to my colleague, Mr. John D. Hill, then senior house-surgeon in the hospital).

2. Thomas H. B——, aged twenty-nine. Chronic synovitis of traumatic origin, one year's duration and treatment. Ulceration of the articular cartilages of the humerus, ulna, and radius, with semiflexed position of the limb. Excision. Recovery, with a partially movable joint. Subsequent formation of abscess and sinuses. Re-excision. Recovery, with a movable joint and a limb useful in flexion, extension, pronation, and supination. Result known to be permanent after one year and four months.

3. Mary M——, aged twenty-eight. Acute synovitis of traumatic origin, one month's duration. Partial ulceration of the articular cartilages of the humerus, ulna, and radius, with subjacent caries; a semiflexed position of the limb; excessive and paroxysmal pain. Excision. Recovery, with a movable joint by passive motion, in six weeks. Result known to be permanent after one year.

4. Jane T——, aged thirty-one. Scrofulous caries of the ends of the humerus and ulna in the elbow-joint. Ulceration of the articular cartilages, with semiflexed position of the limb. Excision. Recovery, with a partially movable joint by passive motion, in two months. Permanent result, at the end of six months, uncertain.

5. Locus P——, aged fifty. Caries of the olecranon of idiopathic origin, ten months' duration and treatment; idiopathic abscess opposite the outer condyle of the humerus six years previously. Carious bone gouged out of the olecranon. The joint opened in this procedure. Excision of the olecranon and of the end of humerus. Recovery, with a movable joint. Permanent result two years.

LECTURE III.—PART II.

SHOULDER-JOINT.—WRIST.—HAND.

Disease of the Shoulder-joint occurs so much less frequently than that of other joints as to considerably restrict the opportunities for clinical observation respecting its seat of origin, the probability of natural anchylosis ensuing, or the necessity of operative interference by excision to bring about that issue. The synovial membrane, in some cases, would appear to be the seat of the disease; and then, suppuration being a rare event, fibrous anchylosis usually ensues. But caries, in other cases, is the mode of origin, affecting the head of the humerus, less commonly the glenoid cavity, or only secondarily and partially; and then natural anchylosis rarely takes place. Caries external to the joint—as of the coracoid process, the acromion, or spine of the scapula—must not be confounded with disease of the shoulder-joint. Thus may be recognised as indications for operation the following:—

Conditions of shoulder-joint disease appropriate for excision. (1) When disease commencing either in the synovial membrane or as caries, has extended to and destroyed the articular cartilages of the head of the humerus, or of the glenoid cavity of the scapula, or of both surfaces, without the supervention of anchylosis The constitutional condition should not have advanced to exhaustion; although in even an extreme state of hectic and emaciation recovery after excision of the shoulder-joint is more probable than after such operation on any other large joint.

Necrosis of the head of the humerus generally necessitates excision of this portion of bone, but sometimes, in central necrosis, the sequestrum can be extracted without excision. Caries or necrosis of the coracoid process or of the acromion is, of course, a condition of disease not requiring excision of the joint.

(2) Osseous anchylosis, a rare condition, with perhaps malposition of the limb, would scarcely ever justify the risk of excision.

The amount of bone to be removed is rarely extensive, the disease being limited usually to the head of the humerus, while the glenoid cavity is comparatively seldom affected, and even then may usually be left untouched, or only scraped.

Operation.—Excision of the shoulder-joint for disease is commonly said to have been originated by Mr. Chas. White, of Manchester, in April, 1768. He had previously excised the head of the humerus on the dead subject; but the operation in question consisted in removing the upper part of the humerus for necrosis, leaving the head of the bone in the glenoid cavity. Similar excisions were performed by Vigaroux, of Montpellier, in 1767; and perhaps by David, of Rouen. Ridewald, in April, 1770, appears to have first removed the head of the humerus for arthritic disease, the patient being a man fifty years old, in a wretched condition of health; secondary amputation was resorted to for suppuration and hæmorrhage, and death ensued. This operation was followed in the next year (1771) by another case: Mr. James Bent, of Newcastle, excised the head of the humerus for caries of three years' standing, and with entire success. In the same year the operation was performed by Leutin; then, in 1778, by Mr. Daniel Orred, of Chester; and in 1786 by the elder Moreau—a complete excision of the humerus, the glenoid cavity, and a portion of the acromion; the result being successful Mr. Syme revived the operation in 1826.

An elliptical incision, U, is the best form of incision, as it exposes the joint most throughly for examination, and facilitates the application of instruments. Sometimes a |, or a ⅂ or a T incision may be preferable; and, in truth, the shape of the flap must be guided by the state of the integument with regard to sinuses or otherwise. Supposing an elliptical to be selected: A bistoury is entered at the posterior border of the acromion, and carried down with a sweep across the insertion of the deltoid, upwards to the inner border of the coracoid process. The flap, embracing the deltoid muscle, is raised by a few touches with the knife, and, by slight adduction and rotation of the arm, the head of the humerus is turned out of the glenoid cavity, the capsular ligament having disappeared. Or the single linear incision may be made. An assistant protecting the soft parts with a spatula on the inner aspect of the bone, the saw is applied below the diseased portion. The head, neck, and proximate part of the shaft may be thus removed, avoiding if possible the circumflex arteries. Any carious portion of the glenoid cavity may be scraped with a gouge. As a rule, with very rare exceptions, the glenoid cavity should not be excised. The flap is replaced, and retained by sutures; and the arm, with an axillary pad, may be bound to the chest, as for fractured clavicle; or supported on a pillow, extending as a splint from the axilla. Subsequently the forearm must be supported in a sling.

RESULTS.—(1) *In relation to life, or the mortality.*—Statistics are not, at present, sufficiently comprehensive to establish more than one general conclusion respecting this question. The average mortality appears to be 1 in 5 or 6; or about 20 and 16 per cent. respectively. Of 50 cases collected by Dr. Hodges, 8 died; 1 in 6, or about 16 per cent.; and in 7 of the 8 fatal cases the glenoid cavity had been interfered with. Of the 30 cases in the hospital collection below, the death-rate was nearly 1 in 4, or 25 per cent.

Author's Collection.

Royal Infirmary, Edinburgh; period, 1865–69. (Per Mr. P. H. Watson.) Number of cases, 10; recoveries, 7; deaths, 3.

Liverpool Royal Infirmary; period, last five years. (Per Mr. W. J. Cleaver.) Number of cases, 7; recoveries, 6; deaths, 1.

London Hospital; period, last five years. (Per Mr. McCarthy.) Number of cases, 3; recoveries, 1; deaths, 2.

Westminster Hospital; period, last five years. (Per Mr. F. Mason.) Number of cases, 3; recoveries, 3.

St. Bartholomew's Hospital; period, 1866–70. (Per Mr. Callender.) Number of cases, 2; recoveries, 1; deaths, 1.

Guy's Hospital; period, 1864–69. (Per Mr. T. Bryant, from Dr. Steele, superintendent.) Number of cases, 2; recoveries, 2.

St. Thomas's Hospital; period, 1866–70. (Per Mr. F. Churchill.) One case; recovery.

Charing-cross Hospital; period, 1865–70. (Per Mr. Hancock.) One case; recovery.

Royal Free Hospital; period, 1865–70. One case; recovery.

King's College Hospital; St. Mary's Hospital; Great Northern Hospital; Royal Albert Hospital, Devonport; Chalmers' Hospital, Edinburgh; Royal Sea-Bathing Infirmary, Margate: period, each, last five years. No cases.

(2) *State of the limb.*—In 4 of the 50 cases collected by Hodges the operation was unsuccessful, leaving a balance of 46 successful cases.

The *average period of recovery*, with some use of the limb, as calculated from 31 of the cases, was four months; "a much longer period, however, than this elapsed before the limb could be said to become really serviceable."

The resulting state of the joint would seem to be that the limb can never be elevated above the horizontal line; while in many cases it hangs down, without any power whatever in the deltoid, at a greater or less distance from the scapula. But the movements of flexion, extension, and adduction are usually free; abduction can often be effected to the extent of raising the arm considerably from the side; and there is generally sufficient power in the *forearm* to carry heavy weights and perform many of the ordinary domestic tasks. The arm is, therefore, a very useful one, irrespective of the vast importance of preserving the *hand*, and thus the person is enabled to follow many of the ordinary trades.

The following cases well illustrate the successful results of shoulder-joint excision for disease. I have abstracted the first case from careful clinical notes by Mr. T. C. Murphy.

CASE 1.—John C——, aged twenty-one, admitted into the Royal Free Hospital July 30th, 1870. The patient, of naturally good constitution, had never suffered from rheumatism; but for the last two years he had habitually drunk hard. At about the commencement of that period he was struck with a stick on the right shoulder. Three months afterwards a small abscess formed at the anterior margin of the axilla; it was opened, and has continued to discharge ever since. The arm gradually became more fixed and drawn to the side. In the course of six months a large abscess, the size of a fist, formed under the spine of the scapula; this was opened at St. Bartholomew's Hospital. Other abscesses have since formed; so that, on admission, the shoulder presented considerable enlargement, and seven sinus-openings—three posteriorly, two externally through the deltoid muscle, and two anteriorly in the angle of the axilla. From the date of injury up to the present time the joint has been painless, unless the arm was forcibly moved. The general health is much reduced by the profuse and long-continued discharge. I therefore endeavored to restore the patient, as far as possible, constitutionally and locally, by a sustaining diet and rest of joint; and, as he retrogressed occasionally from attacks of diarrhœa, I postponed interference, watching the most favorable opportunity for operation. At length, after two months and a half of this manœuvring, on October 15th I excised the joint, performing the operation by the elliptical incision, so as to embrace and raise the deltoid muscle, thus to thoroughly expose the whole joint. The remnant head of the humerus was sawn through below the great tuberosity, observing my usual precaution in all joint-excisions not to detach the vascular connection of the surrounding integument, and making the section just level with its attachment. The glenoid cavity, denuded of cartilage, was slightly scraped and freshened with a gouge. Torsion of one or two small vessels, and one ligature, sufficed to arrest the trifling hæmorrhage. The flap being laid down, and closed by a few points of suture, no retentive splint was applied; an axillary pad, and a bandage as for fractured clavicle, kept the osseous surfaces in apposition, and the arm on the chest. The wound healed throughout by primary union, discharging only from its angles, while the sinus-openings gradually dried up. The result, at the end of about six weeks, was a freely movable joint in all directions, circumduction and rotation, with power to perform these movements, but only to a limited extent that of raising the arm by abduction horizontally. The general health had so far improved that, regaining some flesh and strength, the patient became cheerful, and said "he felt better than he had done for years." He left his bed daily. Subsequently, however, attacks of diarrhœa recurred from time to time, and the abdomen became tumid and tympanitic; enlargement of the liver, assumed to arise from amyloid or albuminous degeneration, was diagnosed by my colleague Dr. Cockle, under whose care the patient afterwards remained. He died from this organic disease on Feb. 4th—three months and a half after the operation, from which he had entirely recovered, and with a freely movable joint. The post-mortem examination verified the diagnosis, and preserved the articulation, as a perfect specimen of a new ball-and-socket joint; an entire capsular ligament has formed, and the section-end of the humerus moves freely on the glenoid cavity of the scapula—in circumduction and rotation.

Case 2.—E. F——, aged seventeen, a young lady, the daughter of a practitioner well known in this metropolis. I was invited by him (January, 1871) to witness the result in this case, and I am thus enabled of my knowledge to speak of its perfect and permanent success. At the same time he communicated the following important particulars to me respecting its history: Six years ago, when this young lady was between ten and eleven years of age, she apparently took cold while resting on a seat in Hyde-park. Her previous health having been always good, and as she had never received any injury to the shoulder, this was the only assignable cause of what took place. The right shoulder-joint became very painful, and acute inflammation set in, followed by free suppuration in forty-eight hours. Dr. Sibson saw the case, and then, by his recommendation, Mr. Samuel Lane, who immediately opened the abscess. It continued to discharge copiously for two months—so abundantly indeed that the father, who measured with an half-ounce spoon the quantity of matter discharged from day to day, thus calculated that the patient lost during this short period three gallons of pus. Her constitutional condition accordingly was much reduced. Then, two months from the date of apparent origin, Mr. Lane excised the shoulder-joint, assisted by Mr. James Lane and Mr. Gascoyen, Mr. Pollock and the father also being present. A longitudinal incision was made on the front of the humerus, apparently at the inner border of the deltoid muscle, from opposite the coracoid process downwards to about three inches in extent, and a short transverse cut superiorly, forming a T-shaped incision. Two inches and a half of the humerus were removed, and the glenoid cavity, in a deeply carious state, was freely gouged. The patient made an uninterrupted recovery. As reparation ensued, the appetite became voracious, and assimilation equally active. Nourishing food—meat, eggs, milk, with port wine, champagne, porter, &c., were taken eagerly at frequent intervals by day, and even in the night. Being naturally intelligent, she declined any tonic medicine, as she felt her flesh and health returning, her suggestive remark being, "Which do you think will do me the most good, that which I like or what I don't like?" The voice of nature, thus proclaimed by nature's child, was heeded. She made a complete recovery, and the result is, that although the arm is four inches shorter than its fellow, she moves it freely backwards and forwards, without, however, the power to raise it horizontally unless aided by the left hand. The motions of the forearm are perfect, so that she can work readily, write, or play the piano. The limb is, therefore, a most useful one, and this result has now been permanently established by six years' service.

WRIST.

Excision of the Wrist comprises, properly speaking, not only the removal of the articulatory portions forming the radio-carpal articulation or wrist-joint, but also the carpus and bases of the metacarpal bones; this extent of excision differing from that of the analogous operation on the ankle-joint, which is restricted to the removal of the articulatory portions of the tibia and fibula, with that of the astragalus.

Conditions of wrist-disease appropriate for excision.—Partial or *complete* disease of the wrist cannot be referred, like that of the larger and more simple joints, to an independent origin, either in the synovial membranes—three in number—or in the bones of the wrist. The lower articular end of the radius and that of the ulna, which in relation to excision is associated with the wrist—the carpus below, consisting of eight bones, in two ranges of four in each—and the bases of the five metacarpal bones, are all so contiguous as to obscure the precise seat of origin in caries affecting the wrist. Then, again, the three synovial membranes are as one, in relation to the origin of disease in the form of synovitis;—the membranous investment of the radio-carpal articulation, which sometimes communicates with that of the radio-ulnar articulation through a perforation in the intervening triangular fibro-cartilage; the investment between the two ranges of carpal bones, with its two prolongations upwards, and sometimes extending into the synovial membrane of the radio-carpal articulation, and the three prolongations downwards which always extend to and invest the four inner carpo-metacarpal articulations; and the separate synovial sac for this articulation in the thumb.

Caries of the wrist appears to be generally of scrofulous, and thence constitutional, origin—excited, perhaps, by some injury of apparently trifling character, as a sprain; while synovitis seems to have another constitutional origin, probably as chronic rheumatism.

Thus we recognise as conditions of disease for excision:—

(1) Scrofulous caries of the wrist, often involving the lower articular end of the radius and ulna, the whole of the carpal bones, and the bases of the metacarpal bones, in a state of extensive caries.

(2) Chronic synovitis, of perhaps more limited extent, but leading to caries and destruction of the articulations.

The *amount of bone* to be removed, as being apparently diseased, may vary according to the character and extent of the disease. Thus excision might include the lower ends of the radius and ulna, with the adjoining carpal bones—in the wrist-joint, or the bases of some or all of the metacarpal bones. But Professor Lister insists on the complete extirpation of the wrist in *all* cases, from the lower ends of the radius and ulna to the bases of the five metacarpal bones inclusive; the disease, however limited it may appear, being apt to recur in the articulatory portions left by a partial excision.

Operation.—Excision of the wrist was originally performed by the younger Moreau, at the close of the last century; subsequently, by a German surgeon, Dietz, in 1839; and then again by Heyfelder, of Erlangen, in 1849; but, in this country, the operation was revived by Sir Wm. Fergusson, in August, 1851. Since that period it has been resorted to by Mr. Simon, Mr. Erichsen, the late Mr. Stanley, and Mr. Butcher of Dublin; and practised especially by Professor Lister of Edinburgh, who has devised a particular method of operation for complete excision of the wrist.

Partial excision consists in the removal of only one or two of the carpal bones, or other limited portions of the bones forming the wrist. This procedure can be readily effected by slitting up any fistulous aperture leading to the carious bone, and extracting it by bone-nippers and forceps.

Complete excision may be performed in either of three ways. The choice of method is mainly determined by the consideration of difficulty in removing the affected bones without dividing the extensor tendons of the fingers and thumb; the supinator tendons, radial and ulnar extensor tendons, inserted into the bases of metacarpal bones, being comparatively unimportant, in consequence of the firm fibrous anchylosis of the wrist after operation, if the result be successful.

First method.—A curvilinear incision is made, extending from just above the styloid process of the radius, downwards across the back of the wrist, and upwards to the same level above the styloid process of the ulna; the flap of integument is reflected, carefully avoiding the extensor tendons of the fingers, and those of the thumb, on the ulnar half of the radius. Then, dividing the supinator tendons, and the extensor tendons of the carpus, and flexing the wrist, the radio-carpal articulation is opened; and while the other extensor tendons referred to are drawn aside with a curved spatula by an assistant, the articular ends of the radius and ulna, the carpal bones, and bases of the metacarpus, are successively removed by a small saw or cutting pliers introduced transversely.

Second method.—Two *lateral* longitudinal incisions are made, one on the ulnar, the other on the radial side, of the wrist, or on its *dorsal* aspect, thus readily avoiding the extensor tendons of the fingers and that of the first joint of the thumb. The operation is then continued as before, and completed by excising the bones in the same manner.

A *single ulnar* incision is deemed sufficient by Sir W. Fergusson, and as the best mode of operation.

But Prof. Lister has particularly pointed out that there are two obvious and important objections to the lateral method, which somewhat resembles that which he has devised. First, the radial incision is so placed as probably to sacrifice the extensor tendons of the metacarpal bone, and of the second joint of the thumb. Secondly, with regard to the bones, that in the transverse division of the bones an unnecessarily large amount of bone is removed from the radius and ulna, and from the metacarpus—a loss of length and breadth which interrupts the process of consolidation, and results in a more narrow wrist and impaired strength of the hand. Moreover, the bones being divided in the dark, that some portion of the disease may probably be left behind.

To obviate these difficulties as to the excision of the bones, and to avoid the tendons requisite for the efficient use of the hand and fingers, another method of operation has been proposed and practised by Professor Lister. It consists in two essential peculiarities; the radial incision is so placed, on the dorsal aspect of the radius, as to avoid the tendons which are otherwise liable to be implicated—the extensor ossis metacarpi pollicis, and the extensor secundi internodii, while the limited but complete excision of the bones is accomplished by first removing the carpus, and then the articular ends of the radius and ulna and the bases of the five metacarpal bones. The hand is placed on a suitable splint, extending up the forearm and secured by a bandage. The most convenient form is an ordinary wooden splint, with an obtuse-angled piece of thick cork cemented to the palmar portion by means of fused gutta-percha, and with a bar of cork stuck on transversely to the under surface of the splint, so as to project at the side. Lister's splint, thus constructed, possesses certain important advantages. The hand lies semiflexed, which is its natural position of repose. The fingers are midway between flexion and extension, into which it is necessary to bring them by daily passive movements, while a certain range of voluntary motion is also permitted, which the patient should be encouraged to exercise frequently during the day. Then, again, this position is best adapted for allowing the extensors of the carpus to acquire fresh attachments; and, the palm resting on the sloping surface of cork, the splint cannot slip upwards nor downwards, secured by turns of the bandage around the transverse bar of cork. This appendage to the splint specially keeps the *thumb* in position; it is thus allowed to fall below the level of the rest of the hand, so as to be most serviceable for opposition to the fingers, while the tendency to adduction of the thumb towards the index finger is prevented by a thick pad of lint placed in the angle between the two, under the turns of bandage around the transverse bar of cork. The palmar piece of cork should be hollowed out to receive the ball of the thumb.

After-treatment.—Two principles must be kept in view, in order to obtain a successful result. Firstly, to procure firm anchylosis of the wrist by retaining it in a fixed position, during the process of consolidation, for a period averaging six or seven weeks. Secondly, at the same time, to maintain the flexibility of the fingers and thumb daily; commencing flexion on the second day, whether inflammation has subsided or not. In executing these movements, each finger should be both flexed and extended to the full degree, while the connected metacarpal bone is held quite steady, so as not to disturb the wrist. Both these principles are provided for by the peculiar construction of the splint; and Professor Lister attaches more importance to their fulfilment, in the after-treatment, than to his method of operation.

Pronation and supination, also, must not be long neglected; and as the new wrist acquires firmness, flexion and extension, abduction and adduction, should be occasionally encouraged. The period during which passive motion should be practised may be resolved into this rule: it must continue until the disposition to contract adhesions finally ceases—a few weeks or a few months.

When the patient leaves his bed, and carries his arm in a sling, the weight of the hand will make it gradually droop to the ulnar side—a tendency which is best counteracted by affixing two ledges of gutta-percha to the ulnar side of the splint, one to support the border of the hand, and the other to prevent any lateral shifting of the splint. As the hand acquires strength, more free play for the fingers should be allowed, by cutting away the splint up to the knuckles, leaving only the palm supported. Some support must be continued until the patient feels the wrist as strong without it as with it. Earlier disuse of this support would as surely undo the work of previous management, and lead to an unsuccessful result. A year, or even two, of such finishing-off support may be required to gain the most useful hand.

Results.—Fifteen cases of wrist-excision are recorded by Mr. Lister as having occurred in his own practice. Of these cases 12 were successful, recovery taking place, and with a hand more or less completely useful in its varied movements of the fingers and thumb, and with combined strength and flexibility of the wrist. In one case the result was doubtful at the time of the report—four months after operation. In the remaining two cases death ensued, though not directly from the operation; one patient dying at the end of seven weeks from advanced phthisis and other complaints; the other patient, after re-excision about six months subsequent to the original operation, lived yet two months longer, when death occurred from phlebitis and pyæmia. Secondary hæmorrhage, or any other bad symptom immediately referable to the operation, occurred in not a single instance.

Thus, then, Lister's elaborate method of operation has been singularly safe and successful.

Other and simple methods of operation have hitherto rarely proved successful, the results having been, in the majority of the few instances recorded, either a stiff and useless hand, or recurrence of the disease and secondary amputation.

Yet it may fairly be doubted whether the superior results attained by Lister's method have not been due—as he himself acknowledges—more to the principles on which the after-treatment was conducted than to the plan and performance of the operation. This conclusion seems to be established by two significant facts in the history of Mr. Lister's cases—that the period of recovery and the resulting condition of the hand were about equal in his earlier and later cases, while the method of operation was different.

Author's Collection.

Royal Infirmary, Edinburgh; period, 1865–69. (Per Mr. P. H. Watson.) Number of cases, 12; recoveries, 9; deaths, 3.

Liverpool Royal Infirmary; period, last five years. (Per Mr. W. J. Cleaver.) Number of cases, 6; recoveries, 6.

Chalmers' Hospital, Edinburgh; period, last six years. (Per Mr. P. H. Watson.) Number of cases, 5; recoveries, 4; deaths, 1.

London Hospital; period, last five years. (Per Mr. J. McCarthy.) Number of cases, 3; recoveries, 2; deaths, 1. Amputation after excision, 1; recovery.

King's College Hospital; period, last five years. (Per the House-Surgeon.) Number of cases, 3; recoveries, 3.

St. Thomas's Hospital; period, 1866–70. (Per Mr. F. Churchill.) One case; recovery.

St. Bartholomew's Hospital; period 1866–70. (Per Mr. Callender.) One case; fatal.

Royal Free Hospital; period last five years. One case; recovery.

Guy's Hospital; Westminster Hospital; Charing-cross Hospital; St. Mary's Hospital; Great Northern Hospital; Royal Albert Hospital, Devonport; Royal Sea-Bathing Infirmary, Margate: period, each last five years. No cases.

HAND.

The Hand may often be subjected very advantageously to various operations of excision, both in regard to the metacarpal bones and the phalangeal bones of the fingers. The conditions of disease appropriate for excision are precisely analogous, with respect to any such operation on these bones of the hand, to those of the corresponding bones of the foot. The articular ends, or the whole, of several or of single bones of the metacarpus, or of the fingers, may be thus removed; instead of having recourse to amputation of portions of the hand, which would unnecessarily include sound portions of this precious member. But the choice of either operation of removal, and the plan and performance of the procedure, must be determined by the kind and extent of disease in each particular case. The general principle here again applies: Pathology is the guide as to the excisional operation, whereby also the portion of the hand which may be preserved is indicated.

Time, Sir, is no man's servant, and it warns me that I must conclude these lectures. Yet I may be permitted to advert to the circumstances which originally turned my attention to the preservation of the integrity and fair proportions of the human body. Years—alas, too many—have elapsed since first I heard the dull heavy thud of a wooden *leg*—so termed, as if perpetually to remind the wearer of the irreparable loss he had sustained. Years have passed since first I felt the touch of a black-kidded wooden *hand*, and spied the dark hole into which a pocket-fork was thrust when its wearer sat down to dinner. The shudder I then experienced at such sights, sounds, and contact, I even now feel whenever my natural instincts are thus affrighted. I care not even how long or how short the natural limb, as left by joint-excision, may be —it is still flesh and blood, and warm with the pulses of life.

I have now to thank—always a grateful duty—the Fellows of this time-honored Society, and the visitors, many of whom will, I trust, soon acquire the former title, for their really large attendance, and for the attentive interest they have evinced in the great aspect of modern surgery which I have endeavored to elucidate and to advocate.

AN ABSTRACT

OF A

Course of Lectures

ON THE

INTERNAL DISEASES OF THE EYE AS SEEN WITH THE OPHTHALMOSCOPE.

Delivered at the Royal London Ophthalmic Hospital, Moorfields.

By J. Soelberg Wells,

Professor of Ophthalmology in King's College, Ophthalmic Surgeon to King's College Hospital, and Assistant-Surgeon to the Royal London Ophthalmic Hospital.

LECTURES IX. & X.

AMBLYOPIC AFFECTIONS (AMAUROSIS AND AMBLYOPIA).

Gentlemen,—In the group of "Amblyopic affections" are to be included only those cases in which the impairment of sight is not due to any material perceptible changes in the refractive media or the inner tunics of the eye, but is dependent upon some cerebral or cerebro-spinal lesion, upon irregularities in the circulation or nervous system, or upon some impure condition of the blood. Thus the term "amaurosis" should be restricted to cases of blindness caused by primary atrophy of the optic nerve, and "amblyopia" to those instances of impaired vision which are due to irregularities in the circulation or defective innervation, but which may finally also lead to primary atrophy of the optic nerve. It must be admitted, however, that an occasional exception must be made to this general grouping. For instance, the name "amblopia" is also applied to cases in which the sight of one eye is very defective from none-use, as in strabismus, in which no structural changes whatever are visible; but when the blindness is due to some material changes in the inner tunics of the eye (e. g., glaucoma, optic neuritis, retinitis pigmentosa), it should be called amaurosis from glaucoma, or optic neuritis, &c.

As my time will not permit me to enter even briefly into a due consideration of the numerous and varied diseases included in the group of amblyopic affections, I have deemed it best only to call your attention to some of the most important practical points bearing on their diagnosis or on the question of prognosis.

In this class of diseases the field of vision must always be examined with especial care and exactitude, as its condition may not only afford us a valuable clue to the cause of the affection, but also materially assist us in forming the prognosis. If the sight is still tolerably good, I have found Professor Förster's perimeter* by far the best and most accurate instrument for testing the field. But sometimes it is advisable also to examine the field by subdued artificial light, in order that slight contraction or interruptions in it may not be overlooked. The acuteness of the central (axial) vision must also be carefully tested and compared with the state of the field. The following are the principal variations of the field observed in conjunction with impaired axial vision.

1. Axial vision diminished, but periphery of field absolutely normal. The prognosis is good, especially if the affection has been of some month's duration.

2. The periphery of field uniformly impaired, but, compared to the loss of axial vision, in a very subordinate manner. Prognosis less favorable, as atrophy of the optic nerve may supervene.

3. The impairment of the peripheral vision is irregular and more considerable, and extends chiefly in one or several directions. Prognosis more unfavorable, on account of the greater probability of atrophy of the optic nerve.

The contraction of the field generally commences at the temporal side, and thence extends gradually towards the centre, either laterally or upwards and downwards, finally reaching the nasal side. Sometimes we find that after the one eye has become greatly affected or even blind, the field of the other becomes contracted at a point exactly symmetrical to that in which it originated in the first. In such cases the prognosis is very unfavorable.

The contraction of the field may be equilateral in both eyes (equilateral or homonymous hemiopia) —e. g., the right half of each field may be wanting quite up to the axis, the line of demarcation being sharply defined. This is due to the decussation of the optic nerve-fibres at the optic commissure, each optic nerve supplying the corresponding half of each retina. Thus if a tumour compresses the right optic nerve behind the commissure, the conductibility of the *right* half of each optic nerve will be destroyed, and the *left* half of each visual field be wanting. Whereas, if the compression is confined to the crossed fibres of the commissure, leaving the lateral ones unimpaired, the nasal half of each retina will be affected, and the temporal half of each field be wanting. The former kind of hemiopia affords the better prognosis.

Besides the contraction of the field, there may suddenly arise central or peripheral interruptions (gaps) in its continuity, appearing to the patient as dark clouds or spots (scotomata). Central circumscribed scotomata may be due to disturbances in the circulation, impaired nutrition of the optic nerve, retro-ocular neuritis, exhausting general diseases, &c. The prognosis is favorable if the periphery of the field is normal; whereas if it is considerably impaired, progressive atrophy of the optic nerve is to be apprehended. It is the better the more the central part of the retina maintains its superiority over the peripheral portions.

In amaurosis, the pupil is generally dilated and very sluggish, or immovable, especially when the other eye is closed; but if the latter be healthy, it may contract consentaneously with this pupil when both eyes are open. In spinal amaurosis, the pupils are often greatly contracted, on account of the paralysis of the fibres from the sympathetic.

In all amblyopic affections, special attention should be paid to the history of the case, more especially as regards the duration and extent of the loss of sight; whether this was sudden or gradual, and whether it has become stationary or is still progressive. We must also examine as to the presence of any symptoms of cerebral or cerebro-spinal disease, such as severe headaches, loss of consciousness or memory, impairment of any of the other senses or of any of the motor powers; also as to the existence of any constitutional disease (e.g., syphilis), or of any functional derangements of the liver, uterus, kidneys, &c.

The ophthalmic symptoms of cerebral and cerebro-spinal amaurosis consist in certain changes in the optic nerve indicative of progressive atrophy. The disc is pale or quite white; the retinal arteries are exceedingly small, or may have almost entirely disappeared, the veins retaining their calibre for a longer time. The small nutrient vessels of the disc also disappear, and this blanches the papilla still more. Sometimes, however, the vessels retain a relatively normal size for a long time. In other cases, the disc, instead of being white, assumes a bluish-grey tint, and shows a distinct atrophic excavation, the vessels making a decided bend or curve as they pass over its margin.

Amongst the most frequent *causes* of amaurosis must be mentioned diseases which are situated in the cerebrum or cerebellum—e.g., tumours, hæmorrhagic effusions, meningitis, syphilitic deposits, softening of the brain, &c. In such cases both eyes are generally affected almost simultaneously, or after a more or less considerable interval. Diseases of the spinal cord are also a frequent cause, more especially chronic myelitis and locomotor ataxy. The *treatment* must vary with the cause. If it be of syphilitic origin, iodide of potassium and bichloride of mercury are of great service. In other cases, tonics, especially steel, quinine, zinc, and strychnine, are found very beneficial. The latter, indeed, is a very favorite remedy, and its subcutaneous injection has lately been highly recommended by Dr. Nagel in cases of amaurosis. I have tried it in several cases, but have not at present succeeded in obtaining much more decidedly favorite results than by its internal administration. The dose for subcutaneous injection is about one-fortieth of a grain, to be repeated daily, or every other day, and it may be gradually increased, its effect being of course closely watched.

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* This instrument is made by Mr. Sitte, optician, 8, Alte Taschen-strasse, Breslau, and costs about £7.

Amblyopia is frequently due to some irregularities in the circulation causing congestion of the eye, brain, liver, uterus, &c.; or it may be caused by anæmia produced by very exhausting diseases, excessive discharges, or hæmorrhagic effusions. We may therefore practically distinguish a congestive and an anæmic form of amblyopia, besides another which is due to so-called blood-poisoning.

In *anæmic amblyopia* the functions of the optic nerves are probably impaired by anæmia of the brain and insufficient excitation of the retina, the ophthalmoscopic symptoms being either negative or simply those of anæmia of the disc and retina, leading, perhaps, at a later stage, to atrophy of the nerve. A most interesting and peculiar form of transitory amaurosis is occasionally met with in severe acute diseases accompanied by blood-poisoning or great poverty of the blood, such as typhus and scarlet fever. The blindness comes on most suddenly, and is generally so complete that the patient cannot distinguish the brightest light, and yet the pupil acts perfectly on the stimulus of light. In two or three days the sight returns. As von Graefe* pointed out, the activity of the pupil is of the greatest importance with regard to the prognosis, as it renders the latter favorable. The ophthalmoscopic symptoms are quite negative. The fact that the pupil reacts perfectly on the stimulus of light, although the eye is completely blind, can only be explained on the supposition that the cause of the blindness is situated between the corpora quadrigemina and that portion of the brain in which the perception of light is localised, and outside the circle in which the stimulus is conducted from the optic nerve to the pupil; for the contraction of the latter depends upon the stimulus of light being uninterruptedly conducted from the retina along the optic nerve to the corpora quadrigemina, to be thence reflected to the third nerve and its ciliary branches.

Congestive amblyopia may be due to the sudden suppression or diminution of customary discharges or excretions (e. g., the catamenia, renal or cutaneous excretions, &c.), producing congestion of the eye or brain. Under this head should probably be also included those cases of amblyopia which are due to blood-poisoning (from alcohol, tobacco, lead, &c.), although their true nature is not yet settled; for we do not know whether they are caused by an excess of venous blood in the brain, by its current being too sluggish, or perhaps by the blood being overloaded with certain toxic materials —such as alcohol or nicotine. But many of these cases of congestive and alcoholic amblyopia are doubtlessly due to retro-ocular neuritis, giving rise (as was described in Lecture VII.) to circumscribed central scotomata, and at a later stage, perhaps, to partial atrophy of the optic nerve. With regard to the so-called tobacco amaurosis, there can be no doubt that the excessive use of tobacco may produce impairment of sight, which is, in my opinion, at first simply functional, and dependent upon a diminution in the sensibility of the retina, so that it does not act with its normal acuteness on the stimulus of light. But if the patient persists in the use of tobacco, atrophy of the optic nerve may supervene, more especially if he indulges at the same time in hard drinking, debauchery, &c. But my own experience is quite opposed to the opinion that there is a special form of atrophy of the optic nerve pathognomonic of tobacco amaurosis.

In many of these cases of congestive amblyopia the ophthalmoscopic appearances of the fundus are quite normal, the impairment of sight being due to a functional and not an organic lesion. Sometimes, however, there is a certain degree of hyperæmia of the disc, the retinal veins being also somewhat dilated, dark, and tortuous, and the disc itself slightly opaque; symptoms of atrophy, perhaps, supervening at a later stage.

In framing a *prognosis* as to the restoration of sight, we must be chiefly guided by the condition of the optic nerve and visual field, the time the disease has lasted, and especially whether the patient will give up his indulgence in the habits that have produced it.

My space will not permit me to enter into the question of treatment, which must vary of course with the cause. In congestive amblyopia great benefit is often derived from the application of the artificial leech; and the free action of the skin, kidneys, and other organs must be maintained. In tobacco amaurosis it is absolutely necessary that the patient should entirely give up the use of tobacco.

DISEASES OF THE CHOROID.

Hyperæmia of the choroid is exceedingly difficult and often even impossible to diagnose, on account of the density of the pigment in the epithelial layer and stroma of the choroid. We may suspect it if there appears to be an increase in the size and redness of the smaller choroidal vessels, and if the interspaces are consequently diminished in size, the optic disc being perhaps also somewhat flushed.

Before studying the different pathological changes observed in the choroid with the ophthalmoscope, the student should make himself thoroughly conversant with the great variety of appearances which this tissue may present within perfectly normal limits, these differences being simply due to variations in the quantity and distribution of the pigment in the epithelial layer and stroma of the choroid according to the complexion of the individual.

Inflammation of the choroid: serous choroiditis.—This affection occurs in two principal forms: the one constitutes acute inflammatory glaucoma; the other involves the tissues to a less extent, and is seldom at first accompanied by any marked external appearance of inflammation. In the vitreous humour there are noticed more or less considerable fixed and floating opacities; and it may become fluid, producing subsequently relaxation or dissolution of the zonula of Zinn, which is followed by displacement of the lens. Serous iritis may also supervene, the pupil becoming dilated, the aqueous humour clouded, and the posterior surface of the cornea stippled with small pyramidal deposits of lymph. The eye-tension often undergoes frequent and marked fluctuations. If the vitreous is sufficiently transparent, we may notice small, pale patches at the periphery of the choroid, which are surrounded perhaps by little agglomerations of pigment.

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* Berliner Klinische Wochenschrift, 1868, p. 22.

Exudative (*disseminated*) *choroiditis* generally presents most striking and well-marked ophthalmoscopic symptoms; for we find in the choroid more or less numerous yellowish-white exudations, interspersed perhaps with thick heaps of pigment and large glistening white atrophic patches, the whole giving a most peculiar mottled appearance to the fundus. The exudations hide the subjacent choroid, and the epithelium in their vicinity is either normal or but slightly thinned; their size varies considerably, some being perhaps only as large as millet-seeds, whilst others may exceed the magnitude of the optic disc, more especially if they are situated near the centre of the fundus, and if several have coalesced. The retinal vessels can be traced distinctly and uninterruptedly over them. When the exudations have become absorbed, the choroid will generally be found to have undergone marked atrophic changes at these points. The thinning of the choroidal stroma permits the sclerotic to shine through, which gives rise to the peculiar bright glistening appearance of these patches. The latter are generally surrounded by a dark fringe of pigment, and in their expanse specks or masses of pigment and remains of choroidal vessels and of the choroidal tissue may be observed. The disease either commences at the periphery and gradually extends towards the centre, or it begins in the latter and progresses towards the circumference. Finally, the greater portion of the choroid may be marbled by white or yellowish-white patches, surrounded by dense masses of pigment, and we may thus be able sometimes to study the various gradations and appearances presented by the disease from the early exudative stage to that in which the choroid has undergone extensive atrophic changes. The disease is very frequently due to syphilis, and this should be particularly suspected if it manifests itself under the form of numerous circumscribed white patches, surrounded by a pale-red zone, and occupying the posterior pole of the eye; also, if the little isolated exudations (situated perhaps at the periphery) extend deeply into the tissue of the choroid, and show no tendency to coalesce, even although they lie quite close to each other.

In some cases the retina may either become infiltrated with deposits of pigment, the inflammation may extend into it, or else it may be injured by direct pressure of the exudations upon the rods and cones. Finally, it, as well as the optic nerve, may become atrophied; opacities of the vitreous humour are of frequent occurrence, and a serous form of iritis may supervene.

A peculiar form of disseminated choroiditis is described by Förster under the name of "areolar choroiditis," in which large, oval sharply-defined, white patches are grouped around the yellow spot; traces of choroidal tissue are apparent in their expanse, and they are surrounded by a zone of pigment, but are often separated from each other by a strip of perfectly normal choroid.

The *prognosis* must depend chiefly upon the extent, depth, and situation of the exudations and the atrophic changes, being of course more unfavorable if they are situated at the yellow spot than at the periphery. It is perhaps best when the disease is due to syphilis, especially if the exudations appear as small circumscribed spots surrounded by a pale red zone.

In the treatment of exudative choroiditis much benefit is generally experienced from the prolonged use of small doses of the perchloride of mercury, combined perhaps with the iodide of potassium. If the disease is recent and rapid in its course, and distinctly due to syphilis, it may be advisable to get the system speedily under the influence of mercury, which I think is best done by inunction. Much benefit is often experienced from the artificial leech. The eyes should be protected against bright light, and their entire rest should, if possible, be enforced.

Tubercles of the choroid present very characteristic symptoms, appearing in the form of very small, circumscribed, round spots, having a greyish-white tint, varying in size from one-third of a millimetre to two millimetres, and being generally situated in the vicinity of the optic disc. If they are minute, the pigment molecules of the epithelial layer of the choroid are not destroyed, but the epithelial cells are only a little pushed aside, which gives rise to a slight discoloration of the choroid. When the nodules are large, they distinctly rise above the surface of the choroid, which may be readily recognised if a retinal vessel should happen to pass over such a tubercle; for then the vessel will be seen to be a little bent forwards at this point, and a distinct parallax can be produced. As a rule, the choroid is perfectly normal quite close up to the nodule, and no pigment is collected around it. It may be fringed, however, by a reddish zone. The number of tubercles may vary from one to fifty or sixty. They are only observed in acute miliary tuberculosis, and probably exist very frequently in this disease; indeed, Cohnheim found tubercles of the choroid present in the post-mortem examination of eighteen cases of miliary tuberculosis. The ophthalmoscope may therefore prove of the greatest use in enabling the physician to determine the diagnosis of the general affection, as the symptoms of acute miliary tuberculosis are often exceedingly complex and doubtful.

Rupture of the choroid may be produced by blows directly upon the eye without any rupture of the sclerotic or retina. When the opacities of the vitreous and the blood effusions into the choroid (which generally follow immediately upon the injury) have disappeared, we discover in the region of the yellow spot one or more pale, crescentic, or linear stripes, whose outline is irregular and frayed, and which perhaps divide into two or three offshoots. The linear figure is peculiarly bright and glistening on account of the exposure of the sclerotic, and on its expanse may be noticed perhaps some choroidal vessels. The margin of the rupture is generally studded with masses of pigment or small hæmorrhagic effusions, but the fundus near it is, as a rule, quite normal, and the retinal vessels mostly pass unaltered over the rupture.

Hæmorrhage into the choroid is likewise often due to a direct injury to the eye, or it may occur in the course of diseases of the eye which cause much disturbance in the intra-ocular circulation. The affection is recognised by the presence of uniform dark-red blood-patches in the choroid, over which the retinal vessels can be distinctly traced. The margin of the effusion is sharply defined, and not striated or feathery, as in the case in hæmorrhages into the inner layers of the retina. When the blood is undergoing absorption the effusion gradually changes its tint, and becomes paler and paler, its margin being fringed with small masses of pigment.

Detachment of the choroid from the sclerotic is of very rare occurrence, and is characterised by the presence of a prominent vesicular protrusion into the vitreous; its surface is tense and perfectly unwrinkled, its outline sharply defined, and the retinal vessels can be distinctly traced over it. Beneath the retina the choroidal vessels and intervascular spaces can be seen, and this is one of the most characteristic features.

Coloboma or cleft of the choroid often occurs together with congenital cleft of the iris, and presents very marked and brilliant ophthalmoscopic appearances. A large white figure is noticed stretching from the ciliary region towards or up to the optic disc. On its expanse are observed choroidal and retinal vessels—the latter bending and twisting over the edge of the coloboma and also within it, so that their line of continuity is often lost; which is due to the fact that the sclerotic is often staphylomatous at this point, giving rise to sudden and abrupt excavations, over the edge of which the retinal vessels bend. The retina, or some thin vicarious tissue, may lie in apposition with the sclerotic, or be stretched across the excavations in it, being then somewhat folded at these points. The periphery of the coloboma is of a reddish-brown tint, sharply defined, and surrounded by dark pigment. The cleft in the choroid may reach quite up to that in the iris, or be divided from the latter by a broad strip of normal fundus, through which runs a whitish stripe (raphé).

Melanotic tumours of the choroid appear at the very commencement as small elevated nodules, which soon increase in size, coalesce, and give rise to a smooth or nodulated brownish mass, which reaches to a more or less considerable extent into the vitreous, its tint varying with the amount of pigment it contains. These appearances may be recognised with the ophthalmoscope if the vitreous humour remains clear and the retina lies in contact with the tumour, and is not separated from it by a considerable amount of turbid serum, which would cause the detachment of the retina to float and tremble with every movement of the eye, and thus mask the true nature of the disease. As I have already pointed out when describing the tumours of the retina, the state of the eye-tension may prove of great value in determining between a simple detachment of the retina from fluid, and one dependent on an intra-ocular tumour; for in the first case the eye-tension is not unfrequently normal, or somewhat diminished; in the latter it is often increased. The oblique illumination is frequently of great service in the diagnosis of melanotic tumours, for by carefully shifting the cone of light from one portion of the protrusion into the vitreous to another, and also bringing it to a focus at different depths of swelling, we may often be able to determine with exactitude whether it be more or ess transparent, or whether it be solid.

Clinical Lecture

ON A

CASE OF PNEUMOTHORAX.

By Henry Thompson, M.D.,

Physician to the Middlesex Hospital.

Gentlemen,—John B——, a french-polisher, aged fifty-two, admitted May 3rd, 1871, was a very healthy man until three years ago, when he had "jaundice and dropsy," for which he was treated as an out-patient at St. Mary's Hospital. His illness lasted about six months, and since that time he has suffered from more or less persistent cough, always aggravated in the winter season.

State on admission.—Pulse 120; respiration 40; temperature in axilla 101·5°. Considerable lividity of face and lips; orthopnœa; expression anxious; slight incurvation of nails, and slight clubbing of finger-ends. Sputa loose. Loud rhonchus, with sibilus and moist sounds on both sides of chest, all most intense and most abundant towards right base. Dulness over lower three-fifths of right back. Fine friction-like but indeterminate crackling sounds below right mamma, where sharp pain is felt on drawing a deep breath. Elevation and expansion of chest-walls both imperfectly accomplished. A roughness, but no definite murmur, with the systolic sound at the heart's base and along the lower margin of the precordial space.

Ordered a mixture containing acetate of ammonia, aromatic spirit of ammonia, spirit of nitrous ether, and tincture of squills; simple poultices to chest; and three ounces of brandy daily.

At 9 P.M. the pulse was 108; respiration 36; temperature 101·4°.

On the two ensuing days, May 4th and 5th, the cough was harassing; the expectoration copious, muco-purulent, shreddy, and fetid; the urine acid, depositing lithates, but free from albumen, and of specific gravity 1025. The pulse, respiration, and temperature all rose within this period, and on the evening of the 5th marked respectively 120, 52, and 102·1°

On the 6th of May dry cupping glasses were applied between the shoulders, and a mixture ordered containing senega, carbonate of ammonia, and tincture of squills.

May 7th.—Slept little; respiration rapid and distressing. Lower region of chest on the right side dull as before; but just above the line of dulness the râles yield a marked amphoric note, and the percussion sounds at the spot partake of the same quality. At the right apex, in the erect posture, the resonance is somewhat similar. No splashing on succussion; no fine metallic tinkling; slight hæmoptysis. Mixture to be continued, and dry cupping repeated. Chloral hydrate, fifteen grains, to be administered at night.

8th.—Much relieved by cupping. Slept well. No blood in sputa this morning. Urine of specific gravity 1018, and free from albumen. Voice-sound everywhere loud, louder even on left back than on right. Breathing more or less bronchial over the greater part of both lungs. No trace of amphoric râles to-day, but around right mamma, in the recumbent posture, the percussion note is intensely resonant. Suffers from diarrhœa. Ordered four ounces of brandy and three ounces of sherry daily; compound chalk powder with tincture of catechu, in draught, when required. Repeat senega mixture.

9th.—Slept ill. Expectoration more profuse and more puriform, and slightly streaked with blood. No amphoric râles, but a cracked-pot sound near right mamma.

10th.—He became drowsy, and in the night restless and somewhat delirious.

12th.—The drowsiness increased, and the breathing grew weaker and more laborious. He now lay for the most part low in bed. Percussion note over right front of the chest unduly clear and ringing.

13th.—Died in convulsions at 11.30 A.M.

At the autopsy, which took place a few hours after death, the thorax alone was allowed to be examined. On removing the right lung the pleural sac was found to contain about two pints of a thin purulent fluid, of intense fetor. At the extremity of what appeared to resemble a small pouch or sinus, retreating from the general cavity of the pleura, a bronchial tube of rather large size opened into the interior of the sac. The sac itself was again subdivided by adhesions into two distinct, but communicating, compartments—an upper and a lower, the upper occupying the space between the lung and the ribs, and the lower intervening between the lung and the diaphragm. The right lung was considerably compressed against the spinal column; there was a general increase of its fibrous tissues, and at the apex a slight amount of consolidation, but no trace of tubercle in any part. At the base of the left lung there was a circumscribed abscess, about the size of a walnut; and above this another, about the size of a hazel-nut. Around these cavities all the tissues were dense and indurated, and throughout the lung-substance there was some fibrous degeneration, but no tubercle anywhere. The mitral valve was thickened, and there was a small fimbriated excrescence upon one of the segments of the aortic valve.

Gentlemen, there are many varieties of pneumothorax as distinguished by their varying modes of origin. Some of these appertain almost exclusively to the surgeon. They originate in penetrating chest-wounds, in abscesses connected with diseased bone, in fractured ribs lacerating the lung-substance, and the like causes; others, again, are mainly remarkable for the extreme rarity of their occurrence—indeed they are so rare that the majority of you might spend a long lifetime in the exercise of your profession without encountering a single specimen. All these I shall pass over, and confine myself to purely medical pneumothorax, as we meet with it in ordinary practice.

Pneumothorax, then, may originate in empyema of old standing. Empyema is virtually abscess of the pleural cavity, and, like any other abscess, it will seek to find an exit for its circumscribed pus in one direction or other. It may penetrate outwards through the integuments and reach the external atmospheric air, or it may proceed inwards through the visceral pleura, and come into contact with the internal pulmonary air. In either case there will be pneumothorax superadded to empyema. When the perforation takes its course from without inwards—from the pleural sac into the lung-tissue,—you may call the pneumothorax centripetal, regarding the lung as a centre, and the pleural sac as a periphery.

Another variety, by far the commonest of all, is the converse of the last. In the vast majority of instances it originates in the rupture of an intra-pulmonary abscess or vomica into the cavity of the pleura, whatever the nature of the vomica may be. As the course of the perforation here is from within outwards—from the lung as a centre to the pleural sac as a periphery,—you may call this variety centrifugal. Pneumothorax of this kind, and that which is due to centripetal perforation in old empyema, are the most important varieties that fall within the province of the physician; and to one or other of these two our own case obviously belongs. To which of the two shall we say? It is not easy to answer this question at first sight. There is a difficulty in discovering the precise outline of a vomica *within* the lung-substance at the spot where the rupture took place. Nevertheless, in spite of this difficulty, I believe the rupture to have been centrifugal—that is to say, from an intra-pulmonary vomica into the sac of the pleura. My opinion is this: Within some indefinite period before admission, a vomica of moderate size broke through the visceral pleura at once in mass by an aperture of communication as wide as itself, or ultimately formed such aperture. The walls of the vomica then in course of time became almost insensibly merged in the pleural membrane, and the interior of the vomica incorporated with the pleural cavity. The appearances at the aperture are in themselves suggestive of this view, much resembling as they do those of a small secondary pouch engrafted upon a large aneurism; and the same view is amply corroborated by the existence of vomicæ in the opposite lung. These vomicæ were probably pneumonic in origin. I cannot believe they were pyæmic. You may call them phthisical, if you please; but, in the absence of any existing trace of tubercle, you can hardly call them in any sense tubercular.

There remains yet another problem for solution. Could we be certain during life that this was a case of pneumothorax? You are aware that the physical signs of pneumothorax are singularly striking—almost unique. I will not enumerate them here. Suffice it to say that the ringing, echoing, reverberating quality of almost every one of these physical signs, when they are widespread and well developed, as they usually are in general pneumothorax or hydro-pneumothorax, is perfectly distinctive, and its evidence unimpeachable. In our case the signs were ill developed; some of the number, indeed, were absent altogether. Moreover, they were inconstant, many of them disappearing at times. Now, under these circumstances, a question might fairly arise whether we should not ascribe the existing physical signs to the presence of a considerable cavity within the lung-substance, immediately contiguous to the chest-wall; or, if pneumothorax there needs must be, whether the pneumothorax was not limited in extent, and circumscribed by surrounding adhesions. I am of opinion there was sufficient evidence to enable us with a high degree of probability to decide in favor of general pneumothorax. When the patient reclined on his back, the whole front region of the chest on the corresponding side yielded a clear ringing percussion-tone. When he sat upright a resonance of similar quality was elicited extensively over the apex of the lung; there must therefore be underneath a large air-containing cavity, and this must almost of necessity imply general or all but general pneumothorax. As a matter of fact, there were adhesions, but these rather distorted the shape than diminished the volume of the pleural cavity.

I have just told you the physical signs of pneumothorax are singularly striking, and almost unique. So also for the most part are the symptoms of pneumothorax. They consist, in one word of sudden and insufferable dyspnœa, with acute pain, and it may be the sensation of something having given way within the chest. Now, on reviewing the past history of this man, there is not a trace to be found of any such event. Let me offer an explanation of this apparent anomaly. As a rule, in perforation from within outwards, the first occurrence is the entry of air into the pleural sac; the second—the natural result of the first—is pleurisy with effusion, or inflammatory hydrothorax, the two together constituting the compound state known as hydro-pneumothorax. It may happen, in a few rare examples even of centrifugal pneumothorax, that the sequence is reversed. Pleurisy, you know, is common enough where there are vomicæ within the lungs; often dry pleurisy, sometimes pleurisy with effusion. Now suppose an abundant pleuritic effusion already existing in association with an unsound lung, there is no reason in the world why a pulmonary vomica in immediate neighborhood of the pleura should not break through that membrane, and introduce air into the pleural sac. Well, what then? You will not in this case have the sudden and insufferable dyspnœa which overpowers the patient in an ordinary case of pneumothorax, because the lung has already been undergoing compression from day to day, and the machinery of respiration has learnt to accommodate itself to its surroundings. Under these conditions, a little air finding its way into an already-loaded pleural sac will be a matter of comparatively trivial moment as far as increase of pressure and dyspnœa are concerned, and need not necessarily be signalised by any symptoms calculated to make an abiding impression upon the memory of the sufferer. Bear in mind, I say the entry of air is of no great moment in the case assumed, as far as increased pressure and dyspnœa are concerned. It is, however, most momentous in its consequences as they concern the characters of the effusion and the ulterior course of the disease; the effusion, simply serous or fibrinous in the beginning, when incessantly exposed to the damaging influence of air becomes puriform, and the disease runs rapidly from bad to worse. These last remarks are made by way of parenthesis; the main point to which I invite your attention is that the invasion of pneumothorax, even in its centrifugal form, although usually, is not invariably accompanied by the striking subjective phenomena to which I have alluded.

A few additional points deserve to be commented upon. The bronchial respiration on the left back is abundantly explained by the discovery of vomicæ in the left lung, with indurations around. The alterations in the first sound of the heart—for they were nothing more, certainly not murmurs—are equally well explained by the rudimentary valvular lesions discovered after death. The next point I shall dwell upon at greater length, for it is a matter of practical importance at the bedside. It is noted that on the 12th of May the patient changed his habitual posture from the erect or semi-erect to the recumbent. Gentlemen, you are all familiar with the fact that there are various modes of dying. One man is said to die from the lungs by apnœa; another from the brain by coma; a third from the heart by syncope or asthenia. You may not be so familiar with the fact that many men die, so to speak, a compound death—by a combination of two or more of the modes of dying enumerated. For example, it is very rare indeed for the victim of old-standing chest disease to die of apnœa alone, although at first sight that might appear to be the sole, or at least the predominant, agency at work. In these cases there are almost always two elements in action—asthenia and apnœa; the two react strongly upon each other in many ways, and conspire together to take the life of the patient. You know perfectly well what is meant by orthopnœa: when the breathing is seriously embarrassed, a man sits upright in bed to save his diaphragm and his lungs. You know what is meant by syncope, faintness, and asthenia: a man lies low in bed to save his heart and to economise its power of propulsion mechanically. For a long time, in the majority of chest complaints of old standing and great severity, orthopnœa is the rule: the patient sits upright, and can endure no other posture for a permanence; at last, it may be, he begins to lie down persistently, while yet all the signs and symptoms of carbonic-acid poisoning and malaëration of the blood—with the sole exception of orthopnœa—are as prominent as ever. What does all this mean? Why this: of the two destructive agencies at work—debility and dyspnœa, or rather debility and malaëration of the blood,—debility is now in the ascendant. It means, moreover, that the blood-contamination, once so strongly resented by the respiratory organs in the form of dyspnœa, is at last, amid the universal narcotism and prostration of the system, so to speak, either unfelt or disregarded. Such a state of things, you may readily imagine, is imminently perilous to life; it is, in truth, the beginning of the end.

The only remaining point is the treatment. What was done in this way is recorded in the notes; what was left undone, to the best of my belief, would have been unjustifiable. Paracentesis of the chest would only have hastened the inevitable issue in death. We were nearly certain of our diagnosis, it is true, but we were not absolutely certain; and even if we had possessed that absolute certainty, the accompanying bronchitis and the general cachexia and collapse would alone have interdicted an operation which, however useful in simple empyema, is at all times of more questionable value in hydro-pneumothorax.

Original Papers.

ON THE TREATMENT OF HYPERPYREXIA,

AS ILLUSTRATED IN ACUTE RHEUMATISM,

BY THE EXTERNAL APPLICATION OF COLD.

By Wilson Fox, M.D., F.R.C.P.,

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(Continued from November No.—p. 580.)

I have narrated these cases *in extenso* because all the phenomena associated with a very active system of treatment, when first applied to any disease, deserve most careful study. It will at once appear that there is a great difference between these two cases in regard to their progress subsequently to the high pyrexia, and with respect to the amount of treatment required to bring them to a successful termination. The female patient, who had a temperature of 110°, was practically out of immediate danger in less than twenty-four hours, and only required two baths, with an interval between them of nine hours, in order to avert all urgent risk of a further rise. At least in her case the subsequent occasional application of the ice-bag to the spine, during three days more, sufficed to maintain the temperature below 103°, and for the most part below 102°, and the fever entirely ceased after seven days.

The man, on the other hand, whose temperature at the commencement of this treatment did not exceed 107·3°, required almost continuous cold applications, extending over a period of eight days, to produce the same result; and during this time he was placed on eight occasions in the bath for periods varying from twenty-five minutes to one hour and ten minutes; and in the intervals between these he was subjected to a, comparatively speaking, almost continuous application either of the ice-bag to the spine or of the wet pack. In the short intervals while these were discontinued there was also, during these eight days, a constant tendency to a rise of temperature to or above 103°, and reaching on two occasions on the fourth day 105·4°. Even on the eighth and ninth days, and after the cold applications were discontinued, the temperature rose to 103·7° and 103·6°, and it only finally regained the normal standard thirty-one days after this treatment was commenced.

The value of all therapeutic measures is ultimately purely a matter of experiment, and dealing as I was with an entirely new set of conditions, at least as regarded this disease, many of my measures must be looked at solely in this light; but I shall endeavor to state what conclusions I have felt may be drawn from them for the guidance of others.

There are however, I believe, in the present condition of medical science, two most important primary questions always to be answered before any active treatment is resorted to in acute disease; and these are, what is the natural tendency of the affection generally, and also under special circumstances, when left without treatment, either to recovery or death?—and further, what is the influence of any method of treatment either in promoting the former or in averting the latter? We have had enough in times past of so-called active treatment blindly pursued in the hope of eradicating acute diseases, which proceed better to recovery without such measures. Acute rheumatism itself affords one of the best illustrations how little medicinal agents, indiscriminately employed, are capable of shortening its duration or favorably influencing its course; and a still more striking example of this proposition is found in the past history of the treatment of acute sthenic pneumonia, the evidence in regard to which cannot, however, be considered here. With regard to acute rheumatism, evidence sufficient is to be found in Dr. Gull's and Dr. Sutton's statistical analysis of the results of its treatment, published in the Medico-Chirurgical Transactions, to show that no single method of treatment hitherto adopted has the slightest *specific* effect on the natural course of this disorder; and the same may, probably, be affirmed with equal truth of the whole class of the acute febrile diseases, with the exception of ague. I believe, however, that individual cases may be advantageously treated by different methods, according to the indications which they severally may present; the remedial agencies at our disposal being thus varied by the circumstances of each case. Nor do I think that the general truth just stated should be any bar to our testing the utility of new methods specifically (in one sense) directed against the disease; and for this reason I am making use of the method of treatment of acute rheumatism by perchloride of iron, as proposed by my friend Dr. Reynolds, but on the merits of which I am not on the present occasion about to make any further commentary, as it will require to be tried on a large scale before its effects can be fully ascertained.

The fact that both these cases were thus treated is no argument against the use of iron in acute rheumatism; for although, in addition to them, one of Dr. Reynold's cases also died with the same phenomena, and also one previously under my care who had in the earlier stages been treated with the same remedy, this mode of termination is by no means peculiar to this method. It has been known to occur in acute rheumatism under indifferent treatment, or by simple salines, in Drs. Ringer's,[*] Weber's,[†] Murchison's,[‡] and Sanderson's[§] cases, and in three others under my own care; or by colchicum, as I have seen in another case; also under the treatment by calomel and opium and veratrine (my own), and by digitalis (Meding): further, it is not peculiar to rheumatic fever, and it may be the mode of termination of most of the acute febrile diseases—pneumonia, variola, typhus, typhoid, puerperal fever, pyæmia, tubercular meningitis, and of injuries to or diseases of the brain, as well as from exposure to great heat.[‖]

To the question, After what degree of temperature attained by the body in febrile states is recovery naturally possible without medical interference? it is less easy to give a positive answer. Wünderlich[¶] gives a diagram of the temperature during a rigor reaching 108·3 Fahr.; but the dis-case is not mentioned, nor is the subsequent course narrated. Ague, on the same authority, may give a temperature of 106·7°, or more; relapsing fever 107·3°, or more; and recovery in the latter disease has been observed by Dr. Obermeier[*] after a temperature of 108·5° has been attained. A case of typhoid fever has recovered after attaining the temperature of 107·8°, but Wünderlich regarded this as an exceptional circumstance.[†] A case of pyæmia lived six days after reaching 107·6°, but ultimately proved fatal; [‡] and a case of tubercular meningitis was observed by him to live several days after reaching, but not maintaining, a temperature of 106·5°.[§] The highest recorded temperature after which recovery has taken place (with the exception of relapsing fever) with which I am acquainted was one observed by my friend and relative, Dr. E. Long Fox of Clifton,[‖] when, in a case of tubercular pneumonia, the temperature rose suddenly from 105° to 108°, and then suddenly fell to 104°, and continued to fall subsequently. Recovery has been observed in pneumonia after 107° has been attained.[¶] Cases have, however, proved fatal in these sudden rises of temperature, before so high a standard has been reached. Thus Wünderlich gives two diagrams of fatal terminations at 105·8° and 106°;[**] and tubercular meningitis may prove fatal under the same circumstances at 105·9° and 106·7°.[††]

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[*] Med. Times and Gaz., 1867, ii.

[†] Trans. Clin. Soc., i.

[‡] Ibid.

[§] Ibid.

[‖] See Wunderlich die Eigen Warme in Krankheiten. Dr. Baumler, quoted by Weber. Trans. Clin. Soc., i. and ii. Quincke: Berlin Klin. Woch., 1869, vi., 301. Also Dr. Gee's Gulstonian Lectures on Pyrexia in the Brit. Med. Jour., 1871, i.

[¶] Loc. cit., p. 165.

Variations probably also exist in this respect in different diseases; and the most important question in relation to the present cases now under consideration is—What is the maximum temperature that can be attained by acute rheumatism to be followed by recovery under indifferent treatment? I put the question in this form because an absolutely correct answer to it would be the surest guide to the time at which it would be proper to commence an active interference with the natural course of the disease; but at present this does not appear to be certainly known. In fact, our thermometrical studies are as yet, perhaps, too recent to allow of such a positive answer to be returned; and it is, indeed, to Dr. Ringer that the merit is almost exclusively due of having first directed the attention of the profession to the thermometrical phenomena attending this mode of a fatal termination in acute rheumatism, and thus of having given us what has proved to be the most valuable guide to the preservation of life in these cases.

As absolute facts, it may, however, be stated that two of Wünderlich's cases of this nature terminated in death with a temperature of 106·5° and 106·88°.[‡‡] Most of the recorded fatal cases of this nature, with the exception of the one before treated by me with bleeding and cold baths, who, after presenting a temperature of 109°, finally died with a temperature of 104·4° from exhaustion, have attained a much higher degree of temperature—108·8° to 111°. I believe, however, that the power of sustaining life after an excessive temperature has been attained is less in acute rheumatism than in some other diseases; and as far as my own observation has yet gone, I have not known one recover after 106°; and, indeed, cases of this disease ending in recovery very rarely attain a temperature of 106°,[*] which is comparatively speaking not very uncommon in typhoid fever. This being the case, and until further evidence has been afforded of the natural powers of the system to resist a high temperature in this disorder, I should regard 107° as the extreme limits to which the temperature should be allowed to rise before the external employment of cold is commenced. It appears to be safe to wait as long as this—at least, judging from the experience of my three cases and of one by Dr. Meding.[†] It must, however, be remembered that after, and indeed before, this temperature has been attained there may be little time to spare. Of twenty-one cases which I have been able to collect of this series of phenomena, the total duration from the first rise, and from a temperature varying from 102° or 105° to 109°, 110°, or 111°, was in one case only two hours (103·5° to 109°); in another four hours and a half (104·8° to 109°); in another seven hours (105° to 110°); in another eight hours (102·2° to 109·5°). In eleven others the periods of the total rise varied from nine and a half to sixteen hours; in two a period of twenty-four hours appears to have thus elapsed. The last rise may, however be extremely rapid, though in one case it lasted ten and in another fourteen hours from the time the temperature had reached 107° to death at 110°; but in one case death took place at 110° within three hours of the first delirium; three others occupied little more than three hours in rising from 106° to 109·8° and 111°; while in four others six or seven hours were required for this elevation to ensue. After 108° has been reached, a period of three hours may elapse before death at 110° or 111°; but this rise may only occupy one hour and three-quarters; and after 108·5° has been surpassed death may be very rapid, though life has been prolonged for one hour after 110°, and in one case two hours, in two an hour and a half, in another one hour, and in another forty minutes after 109·4°; yet death may ensue within twenty minutes from the time that the last-named temperature has been reached. In some cases oscillations appear to take place while the rise is progressing, but these are generally slight in degree, and the falls which thus take place seldom amount to 1° Fahr.; they are shortly followed by a further continuous rise, and must not be allowed to excite fallacious hopes of improvement, or to diminish the vigilance with which such cases should be watched.

In one case, which occurred in my practice last summer, I was prevented from employing the remedial action of cold by the rapid rise of the temperature and the delay of the nurse in sending for me. The case had been a severe one, and had several times shown a temperature of 104°, and on two occasions it had before reached 105·4° and 105·2°. On the morning of the day before the death of this patient (a man aged thirty-five) the temperature was 102·7°; the same evening, 105·4°. At 4 A.M. it was 106·2°, at 6 A.M. 109·3°; but I was not sent for until 7 A.M. I reached the hospital at 7.45; but the temperature was then 111·6°, and the patient died at 8 A.M.—two hours after a temperature of 109°, and four hours after a temperature of 106° had been attained.

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[*] Virchow's Jahresbericht, 1869, ii., 232.

[†] Loc. cit., p. 13.

[‡] Ib., table vi.

[§] Ib., table vii.

[‖] St. George's Hospital Reports, 1869, p. 71: "Clinical Observations on Acute Tubercle," Case 6.

[¶] Kocher: Die Behandlung der Crouposen Pneumonie met Veratrum-preparafen. Wurzburg, 1868.

[**] Loc. cit., p. 260.

[††] Quincke, loc. cit.

[‡‡] Loc. cit., table vii.

[*] I have not, indeed, known a case recover after 106°. One case lived three days after this had been attained, the temperature falling in the interval to 103°, the patient dying finally of asthenia. Dr. Murchison has, however, known a case of acute rheumatism recover after attaining a temperature of 106·5°; but he regards this possibility as very exceptional.

[†] Archiv fur Heilkunde, 1870, xi., 467. In this case, to be hereafter alluded to, the treatment was commenced by cold affusion and iced enemata, when the temperature was 108·6°. I have only met with this report since the two cases last under my care have recovered. Dr. Meding's case was treated successfully in 1870. My first but unsuccessful case was in 1869. I am extremely glad to be able to adduce corroborative and independent testimony to the success of this treatment.

The main indication of danger is, I believe, a rapid rise of temperature; but I regard cessation of perspiration while the temperature is still high, and a disappearance of the pains in the joints, as symptoms of very great gravity. All the cases terminating fatally with high temperature which have come under my own observation have presented this combination of symptoms, and I find it recorded in several other cases. Sweating had been profuse in many of these cases before the fatal rise, and in several the abundance of sudamina and miliary vesicles was a very prominent symptom. In one case reported by Mr. Anderson,[*] the cessation of perspiration was noticed, on three successive days before the fatal issue, to be followed by delirium, which disappeared on the return of the perspiration.

Vomiting has been observed in three cases out of twenty-one, but it does not appear to be a common symptom of invasion.

Delirium is also a sign of danger, but it may occur when the temperature is 103·4°, and when no subsequent rise has followed; but, as Dr. Ringer has remarked, two classes of nervous symptoms characterise these cases: in the one a semi-comatose condition is observed, in the other delirium; and each of these forms is illustrated in the two cases which I have narrated.

A cyanosed condition, probably arising from the rapid accumulation in the blood of the products of the destruction of the tissues, is not uncommon. The passage of a large quantity of pale urine of low specific gravity has also been comparatively frequently observed;[†] and I have known it to occur on several days preceding death. A sudden increase of the frequency of the pulse without demonstrable increase of cardiac mischief should in adults excite suspicion; and the same is true of accelerated respiration without the physical signs of a pulmonary affection. A rapid pulse is an almost constant concomitant of these attacks. Dr. Ringer observed a frequency of 186; but in those coming under my own observation, or recorded by others, it has not exceeded 140.

The possibility of this termination, however, must teach us to watch the thermometer very closely in all cases of acute rheumatism; and this duty becomes the more imperative since it is now shown that we have not merely to study a pathological fatal termination, but that the alternative of the death or possible recovery of the patient may depend on the care of the medical attendant in this respect. It is not merely the apparently severe cases at the outset that are liable to this termination. Out of 15 cases where the data have been accurately recorded by others or by myself, in 4 the temperature, prior to the extreme rise taking place, did not exceed 104°, in 2 it was below 103°, and in 2 below 102°. In 3 only had it exceeded 105°. In one case, indeed, of Dr. Ringer's, the patient, who had recovered from rheumatic fever, was about to leave the hospital next day, and died within two hours with a temperature of 110°, after being apparently in fair health. It is known that pericarditis, as such, has little influence in determining this condition; and in 7 cases, including one of my own, the heart has been found almost unaffected. Indeed, many of these cases are singularly free from anatomical changes in the viscera. The entire freedom from changes in the brain or its membranes, in all the post-mortem examinations made of these cases, entirely disposes of the theory of metastasis; and though they have been termed instances of "cerebral rheumatism," the name thus given scarcely defines their real nature. In one case only were ecchymoses found in the meninges; but this appearance is common in the other viscera.

I think it desirable, also, to point out that no therapeutic measure, with the exception of the employment of cold, has hitherto proved to be of the slightest effect in checking the rise of temperature. One of Dr. Ringer's cases was bled to twelve ounces, one of mine to more than twenty ounces, without effect. In fact, for the future, bleeding must be regarded as entirely inadmissible. It is known to be so in the analogous condition of sunstroke,[*] or, more properly termed, "heatstroke," which is now shown to be of an analogous nature, and to be attended with hyperpyrexia, and where the most successful treatment is the cold affusion.[†] In Dr. Meding's case the rise occurred while the patient was taking full doses of digitalis; in one of mine, while the tincture of veratrum viride was being given in doses of five minims four times daily. (This patient had taken ten minims before, but it was omitted for twenty-four hours owing to a reduction of the frequency of the pulse to 54, associated with diarrhœa and with great depression, but with scarcely any perceptible lowering of the temperature. He had again resumed it for forty-eight hours before the final rise.) Blisters to the nape of the neck, cold to the head, sinapisms to the legs, free purgation, were all tried by Mr. Anderson without success, though his treatment was complicated by an attempt to restore perspiration by external warmth. Quinine, in the excessive doses in which I gave it (120 grains in six hours), equally failed in the first case, and also in the second, where half a drachm was given. Opium had been given in a hypodermic injection of one-third of a grain of morphia to my last fatal case on the night of his death; and full doses in another case which has come under my observation. Calomel and opium, given during forty-eight hours to the same patient three days before, had also failed to produce any impression on the pyrexia. I gave the quinine in these two instances entirely experimentally, being influenced by my observations of its apparently favorable effects in some cases of pyrexia[‡] and in one of rheumatic fever.

The fact remains, therefore, that at present the only agent on which reliance can, under the circumstances, be placed, is the external application of cold; and the results of my experience may not be without their value to others. In the first place, it is very distinct from the reports that the surest, most speedy, and effectual method in which it can be applied is by immersion in the bath, while the temperature is observed in the rectum. The patients were slimply lifted on a sheet into and out of the bath. After their removal from it they were wrapped in blankets. It is more comfortable to the patients to be immersed in tepid water subsequently cooled than in cold water. With this precaution the bath is to them the pleasantest of these methods of treatment. Allen C—— repeatedly asked for it while being packed in the wet sheets wrung out of iced water. On several occasions in Allen C——'s case a rise of temperature was observed to follow immediately after his immersion, and also in the second bath given to Mrs. B——, where a rise of half a degree took place in the first five minutes, but was followed by an immediate fall. I felt doubtful whether in Allen C——'s case this effect could be attributed to a natural tendency to rise already existing; but I am inclined to think that it was probably due directly to the bath, since it took place with a rapidity out of proportion to the previous rise, and lasted for some time. It may, indeed, be probably regarded as an exaggeration of the natural tendency produced by the first application of cold to the body, which has now been shown to be almost immediately followed by this phenomenon; and it has been observed by Liebermeister in other forms of pyrexia.* The amount of the rise and its duration was longer in the later baths, when the patient was weaker, than in the earlier ones. Thus in the first bath it only occurred during the first five minutes, and amounted to only three-tenths of a degree; but on the third, fourth, and sixth days, dating from the commencement of the treatment, the rise lasted during twenty-three, twenty-two, and twenty minutes, and amounted on these occasions respectively to seven-tenths, eight-tenths, and six-tenths of a degree. Even with this effect the amount of the rise cannot be regarded as a serious one, and it was speedily followed by a reduction of temperature. It is, however, to be observed that this rise did not appear so markedly to follow the first applications of the ice-bag or of the wet sheet, though some indications of it were occasionally observed.

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[*] British Med. Journal, 1870, ii., page 528.

[†] It was not noticed in the two cases I have here recorded until after the treatment by cold.

[*] See Dr. Baumler, Trans. Clin. Soc.; and Dr. Gee's Gulstonian Lectures on Pyrexia (Brit. Med. Jour., vol. i. 1870) for other authorities and another case.

[†] Dr. Maclean, Reynolds's System of Medicine, vol. ii.

[‡] See also the Report of the Committee of the Clinical Society, Trans. Clin. Soc., vol. iii.

The extent of the reduction of temperature by the bath demands, I believe, some precaution on the part of the practitioner. I need not repeat the details already given; but it will be observed that, in both the baths given to Mrs. B——, the temperature fell considerably—in the first from 103·6° to 97·4°, and in the second from 103·9° to 99·4°—after her removal from the bath. The same effect was also observed in every bath given to Allen C——, with one exception, occurring on the fourth day of treatment, when the bath failed to reduce the temperature to the normal standard; at least no material fall ensued after his removal from it, though this effect was observed after all the others.

It may be noticed in Allen C——'s case that, with the progress of time, the pyrexia appeared more persistent, and was less influenced by cold. In Mrs. B——'s case the application of the ice-bag was alone sufficient to maintain the temperature at a very moderate elevation after the first twelve hours, and after her second bath. In Allen C——'s case the ice-bag also at first produced a similar effect, but gradually appeared to lose all power in this dirction; but, under these circumstances, the ice-cold pack continued to answer this purpose, though it required very prolonged applications of twelve and fourteen hours' duration, changing the pack repeatedly during the later days of the treatment. A similar gradually increasing resistance to the effects of the cold was observed in the fatal case before recorded.

Cases evidently differ largely in the intensity of the pyrexia in this respect. In Dr. Meding's case—a female, aged twenty-two—the application of ice-cold cloths to the body, together with enemata of iced water given every half-hour, reduced the temperature in five hours from 108·6° to 99·5°, and the pulse from 140 to 72; and no further rise ensued. The patient then perspired freely, was able to sit up within two days, and recovered without any relapse.

As a general rule, it would appear that when the rise of temperature is rapid, and it has already reached a high standard, the use of the cold bath is the most certain and speedy means for its reduction, but that it requires care for its employment; that when these indications are less strongly marked, the ice-bag to the spine may be employed; but that when the pyrexia is persistent, the sustained use of the cold pack may suffice to maintain it at a moderate standard. In the absence of appliances for complete immersion in cold water, Dr. Meding's method of employing cold enemata, frequently repeated, may also prove of value.

It became a very diffcult question to decide, in Allen C——'s case, when it was safe or desirable to discontinue the artificial reduction of temperature. In fact, I felt that it required almost more courage to abstain from this treatment, while so much pyrexia persisted, than to commence it. Feeling that any material rise of temperature must greatly reduce the patient's strength, it was my object to maintain the pyrexia at as low a standard as possible. The prostration induced bv the high fever is evidence sufficient how soon the strength might be exhausted by a repetition of such attacks; and Allen C——'s case certainly appeared to threaten this by the rapid rises of temperature which were more than once repeated when the cold applications were discontinued.

It may probably require further experience to determine at what period of cases, where pyrexia still remains, it is safe to omit the cold applications. Perhaps the reappearance of perspiration may hereafter prove to be a sufficiently favorable indication in this respect. In Allen C——'s case, however, the temperature rose to 105° after this had occurred on the third day of treatment, but it ceased to manifest this tendency in a marked degree after free perspiration occurred on the seventh day. Dr. Meding's patient perspired freely as soon as the temperature had fallen. If the perspiration is free, and the rheumatic affection reappears in the joints, these are, I think, still more favorable signs; for in their absence—whether or not we regard the poison as localised by the joint affection—its violent effects on the system are certainly more apparent than in their presence. In Mrs. B——'s case the return of the joint affection was very slight; in that reported by Dr. Meding it did not occur at all; but in Allen C——'s case the rheumatic joint affection became very distinct coincidently with the improvement of the patient. The mode of appearance, indeed, of the perspiration in these cases is remarkable, and deserves attention. We usually consider that it is a process by which the temperature of the body is partially equalised, especially when it is exposed to unusual external heat; and its spontaneous cessation in rheumatic fever is commonly associated with a rise of temperature, though it may be observed when this is comparatively high, as 104·5° or 105°. In most febrile affections, however, perspiration occurs most freely when a natural fall of the temperature is taking place, either in the periods of remission of continued fevers, or in the commencement and during the progress of the remissions of ague, or, as is still more strikingly seen, in the first period of apyrexia following the crisis in acute pneumonia. The peculiarity, however, of these cases is the sweating that takes place when the skin is artificially cooled. It generally appears during the first period of the rise ensuing after the cooling by means of the bath or other applications has reached the lowest point. Thus in Mrs. B—— it was seen within the first fifteen hours, four hours after the second bath, when the temperature was 100·7°. In Allen C—— it first appeared forty-four hours after the first bath and two hours after the removal of an ice-bag, when the temperature was 101·2°; and again on a second occasion, five hours after the removal of the ice-bag, when the temperature was 103·4°; but on a third occasion it appeared one hour after removal from a bath, when the temperature had reached its minimum (99·5°). It was, however, also seen on the face while the patient was enveloped in an ice-cold pack, and the temperature in the mouth was 101·6°, though it was more abundant after the pack was discontinued. In Dr. Meding's case it was observed after the first fall of temperature, and when this had reached 99·5°.

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* See Dr. Gee's Lectures, loc. cit.

It is evident, however, that the treatment by the cold bath must not be looked upon as a curative agent for rheumatic fever as such, but only as a means of averting one of its accidents. In both Mrs. B—— and Allen C——'s cases the rheumatic joint affection returned, together with sweating and continued pyrexia. In Allen C——'s case this was of some severity; in Mrs. B——'s case it was very slight. In Dr. Meding's case it was, however, not observed at all. It is, indeed, possible that the rheumatic poison may in some cases be finally metamorphosed or exhausted through the intensity of the pyrexia and the rapid destruction of tissue. In Dr. Meding's case the hyperpyrexial attack appears to have occurred about the ninth or tenth day of the disease, when the termination of acute rheumatism in perfect recovery is comparatively rare; but in Mrs. B—— the joint affection returned after twenty-six hours, and in Allen C—— on the ninth day, and only ceased in his case on the twenty-eighth day after this treatment was begun, or on the forty-fifth day of the disease.

I believe that these cases afford a pretty clear proof that, with the precaution before alluded to respecting the rapid effect of the bath in the reduction of temperature, this treatment involves no specially dangerous consequences. It is true that Mrs. B—— had an attack of bronchitis, passing, indeed, into broncho-pneumonia, on the fourth day subsequent to the first bath, and some may be inclined to think that this was a direct consequence of the external application of the cold. I am, however, disposed to regard this connexion as extremely doubtful, and to believe that this attack was one of the accidental phenomena incident to the disease itself, and not caused by the treatment. Intense pyrexia largely predisposes to congestion of the lungs, and pneumonia or broncho-pneumonia is a common complication of nearly all the acute febrile diseases, as was, indeed, noticed by Laennec, and is by no means rare in acute rheumatism. The invasion, also, of generally disseminated moist râles throughout the lungs shortly before death, similar in character to those which appeared in Mrs. B——'s case, has also been observed in some of the fatal cases of this nature. However caused, they disappeared almost entirely while the treatment by cold application was still continued—a fact which is of considerable importance in estimating its safety. The cardiac complication, also, which in Mrs. B——'s case was comparatively slight, was in her not only not aggravated, but positively improved, during the same period.

Still more striking in this respect is the evidence afforded by Allen C——'s case how little the most serious complications can interfere with the general utility of this treatment. He had a double pleuro-pneumonia* and a pericardial effusion, producing dulness as high as the second left cartilage, before he was put into the bath. The pneumonia resolved, and the pleuritic effusion almost disappeared, during the period that the treatment by cold was continued. We have learnt from F. Weber's, Bartel's, Niemeyer's, and Ziemssen's observations, that the treatment by cold applications is distinctly beneficial in many cases of pneumonia; and the existence of this complication need not, therefore, be any bar to the practice. There was certainly, in Allen C——'s case, an increase in the pericardial effusion, which at one time reached an alarming amount, during the early days of the treatment; but it also again diminished while this was still persisted in. I cannot feel that this first increase of the effusion can be justly attributed to the treatment by cold. It is too common a complication of the disease to be, I think, regarded in any other light than as a part of its natural tendency and course. Besides, whatever speculations may be indulged on this point, when we look at the alternative between resorting to and withholding this treatment, under the circumstances then existing, I feel that no complications of this nature should stand in the way of its immediate employment. The slight rigors occasionally observed during the fall of temperature do not appear to have been followed by any injurious effects. It may be noted that in one of these, in Allen C——, the temperature was still above the normal standard.

It may perhaps be questioned whether, in future cases, any external warmth may be necessary to prevent too great a fall of temperature. Severe collapse produced by cold has been shown by F. Weber's, Bartel's and Ziemssen's observations on the pneumonia of children, to be less dangerous than it at first appears.

To some it may appear that the cold sheet has this advantage over the bath, that, its application being continuous, there is less fear of "reaction." I very much doubt, however, whether the rise of temperature following either of these can be regarded in any materal sense in this light. If there is such a "reaction," it is certainly long delayed, as is evidenced by the prolonged fall of temperature which ensued after their removal from the bath.

The importance of avoiding the *nimium medicinæ deligentiam* has induced me to consider carefully the subsequent treatment of these cases. I allude particularly to the administration of quinine and of stimulants. Dr. Meding's case, as far at least as is reported, seems to have recovered without any further assistance; therefore it may be a question whether the remedies given in the latter stages of both these cases were not unnecessary. This can only be tested by actual experiment; but I believe that both the patients whose cases I have recorded were benefited by the stimulants administered, and I very much doubt whether C—— would have recovered at all without them. For twenty-four hours on the fifth day of this treatment I was hourly expecting his death from exhaustion, while the pericardial effusion was at its height, and I more than once considered the propriety of resorting to paracentesis pericardii, which has been so successfully practised by Dr. Clifford Allbutt of Leeds.

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* The signs of pneumonia existed before those of pleuritic effusion.

We have long learnt that the administration of stimulants does not increase pyrexia in the acute febrile diseases; and though I by no means think their indiscriminate use desirable, there are circumstances when the largest doses that can be taken may be administered with advantage, and I believe that Allen C——'s case was one of these. The indications for their use in Mrs. B——'s case were also very distinct. However, Dr. Meding's case is a valuable contribution to the history of such cases, inasmuch as the patient recovered rapidly without them; thus showing that they are not invariably necessary.

The value of quinine is, perhaps, more doubtful; I do not allude to the first large doses which I gave in order to test its power of checking the rapid rise of temperature. This, as has been seen, failed entirely. My reasons for continuing its use were chiefly four. In the first place, Briquet* showed that the administration of full doses of this drug in rheumatic fever—75 grs. to 90 grs. in the twenty-four hours—had the effect of retarding the frequency of the pulse. In the second, as I have already stated, I had seen the temperature fall under its use in this disease and in other febrile affections; and I thought it possible that, after the intenser paroxysm had been subdued, its effects in this direction might still become apparent. Thirdly, the committee of the Clinical Society, in their report on this subject, have adduced much evidence of its power in this direction in other febrile diseases. Lastly, it has been freely used in Germany in conjunction with the cold bath in the treatment of typhoid fever. I had also thought it possible that the retardation of the pulse, after the first fall of temperature, both in Mrs. B——'s and Allen C——'s cases, might be in some degree due to the large quantities before taken; and I desired, if possible, to maintain this effect. Dr. Meding's case, however, shows that the restoration of the pulse to a nearly normal frequency may occur under the use of cold alone, without the employment of quinine; and I question whether in mine, when the same effect was observed after the baths, any direct effect could be attributed to the quinine. The large dose at first given to Mrs. B—— produced some gastric disturbance; and I think that a minor degree of this complication is to be attributed to its employment in Allen C——'s case. It would therefore appear desirable that future cases should be treated without it, until at least it is seen whether any more distinct indications call for its employment.

In Allen C——'s case the quantity of urine and urea passed during the febrile stage was very large, but both were higher in the latter than in the earlier periods of the treatment. Forty-eight hours after the treatment was commenced he passed 109 ounces of urine containing 527 grains of urea; on the fifth day 191 ounces, containing 767 grains; on the twelfth day 165 ounces, with 894 grains; though on the eighth day 64 ounces of urine only contained 220 grains, and on several days the amount of urea was less than 500 grains.

The quantitative analysis of Mrs. B——'s urine was only commenced on the fifth day after the extreme pyrexia. Subsequent to this day the greatest quantity of urea passed was 433 grains, and it never but once exceeded 350 grains. It is probable therefore that the products of the decomposition of tissue were eliminated in the first four days, during which the patient was, however, still pyrexial.

I may, in conclusion, be permitted to remark that I trust that this treatment may be hereafter found equally successful in other febrile diseases presenting similar phenomena of hyperpyrexia, and in some of the cases of puerperal pyæmia, and even of tetanus. It is a possible accident in the whole class of these affections, and many of those whose duration is definite will probably present a more favorable field for its utility than acute rheumatism, which may, as in C——'s case, be indefinitely protracted, even after the immediate danger of death has been averted; but in the specific fevers, if life can only be protracted and the strength maintained through their natural course, they tend finally to a spontaneous recovery.

I must, finally, express my sincere thanks to my assistant, Mr. Bindley, to my clinical clerks, Mr. Greenfield and Mr. Benham, and also to the Sister Superior and nurses of the wards, for the admirable and intelligent aid which they afforded me during these observations. A large proportion of the records of the temperature, and many notes of the state of the patients, are due to them. The temperature was taken in both cases every half-hour during the day and night, and the accuracy of the observations carefully verified. To Mr. Benham I am indebted for the quantitative analyses of the urine during many days consecutively.

Although two cases of this nature, occurring simultaneously, were a great strain upon the nurses of the ward, I am yet disposed to believe that, with the aid of one or two intelligent attendants, and watchfulness on the part of the medical practitioner, no less success may attend this treatment even in private practice. Though Allen C——'s case was of great severity, yet that recorded by Dr. Meding, which occurred in a servant in a private family, is a proof how speedily recovery may ensue under these hitherto fatal circumstances of the disease.

I believe that when cases of acute rheumatism are more carefully watched with the thermometer than they have hitherto been, nearly all the instances in which it is immediately fatal will be found to be of the class now considered. I have only seen a very few cases where, without an extreme pyrexia, death could be attributed solely to complications existing in the heart and lungs; and I believe that several of the cases proving rapidly fatal which I have seen in the course of my hospital experience have been due solely to this cause, though the temperature has not been in all cases accurately recorded. If the treatment here proposed is as successful in the hands of others as it has proved in mine, I think we may indulge the not altogether vain expectation that its mortality may be materially diminished, at least in one of its most dangerous forms.

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* Traite du Quinquina.

QUASI CHOLERA.

By Alfred Carpenter, M.D.

It sometimes happens that very observant men are deceived in the appearances which a particular case presents, and in the multiplicity of business and the inability to give sufficient time to the consideration of the case, diagnose cholera maligna. If the case is rapidly fatal they have no opportunity of verifying their diagnosis, the case is registered as cholera, and if the disease is present or is to be apprehended as an epidemic, panic is either produced or increased; and thus an error in diagnosis may produce much mischief. I have met with two instances which were so registered—one in the epidemic of 1864, the other in the year following,—which, in my opinion, were not cases of cholera at all, but of embolism.

The recent events which seem to be heralding the approach of the disease in question, and the mistake made the other day in announcing its actual presence amongst us, lead me to think that the publication of the following case may not be without interest, and may draw attention to the similarity of symptoms which existed in a disease altogether different from cholera, and which, had it suddenly developed itself (instead of occupying three days) and been rapidly fatal, might have been diagnosed as cholera in a hurried visit, especially if the disease had existed at the time as an epidemic in the place. The case is also highly interesting as directly bearing upon a controverted point in the pathology of the disease in its collapsed stage, which has been so strongly urged, and said to be proved, by Dr. Geo. Johnson. The symptoms developed in the case seem to bear out his theory. It is, however, only set forth so far as it bears upon the controverted point in question—viz., the arrest of circulation in the lungs in the collapse stage.

A. M——, a single woman, aged fifty-three, well-built, healthy-looking, with florid complexion, reports that she used to be subject to asthma, but has not been for some years troubled with that complaint, was seized with pain in the right foot early in May, 1869. On the 15th there was some swelling about the instep, slight tenderness, pain increased by movement; but there was no constitutional disturbance, and, beyond an excess of uric acid in the urine, nothing in her general state worthy of mention. Rest and simple diet were enjoined, and an alkaline treatment prescribed. In a few days the pain decreased, the swelling lessened, the foot became slightly œdematous beneath the inner malleolus, and she began to move with ease. The left foot then became tender, red, hot, and swollen; and it went through the same phases as the right, also without any constitutional disturbance. She remained in bed. On the 4th of June there was considerable œdema of the left leg, with tenderness, from the great toe to behind the inner malleolus, extending into the calf of the leg. An aconite embrocation was prescribed to relieve the pain, and, as the urine remained highly acid, the potass was continued. She used the embrocation freely herself for some time; the pulse was quiet; tongue clean; appetite fairly good.

On the next day she became low-spirited and inclined to be hysterical without apparent cause; she passed a restless night, scarcely sleeping at all. On the 5th she was still more depressed; was teazed with flatulency; complained of much uneasiness in the cardiac region, and eructated continually. In the evening she was quite hysterical—a character foreign to her usual state. On the 6th the pulse, which had hitherto been rather slow, rose to 90; the respiration became increased in frequency, 24 per minute; the usual healthy aspect of the face was gone, and, instead of a florid complexion, her face had become paler, with a slightly leaden hue. The stethoscope did not reveal any physical signs of disease in the chest. There was much pain in the legs, and they were both more tumid about the ankles, whilst the body generally was hotter than usual.

June 7th.—The duskiness of the face is more manifest, her manner flurried and very restless; she had not slept for more than a few minutes at a time during the preceding night; complains of much pain at the pit of the stomach and along the edge of the left costal cartilages. The respiratory movements are increased to 26 per minute; the flatulent eructation is excessive, continuing for some time after each act of swallowing. The legs are more painful, more swollen, but not œdematous. The tongue is furred; she has lost her appetite, which up to yesterday had not been interfered with and suffers great thirst. Pulse 92; skin moist and hot. The urine, which up to this time had been plentiful, has now decreased in quantity; sp. gr. 1026, slightly acid, and without albumen. Stethoscope does not reveal any sign of mischief in either the heart or the lungs; the sounds of the heart are clear and distinct, and the breath-sounds unaltered.

8th.—Duskiness of face very manifest; much pain at point of sternum, rising for about two inches above it, but being more decided below the point of ensiform cartilage. The thirst is now intense; she drinks small quantities very frequently, but after each act of swallowing, before the fluid can have passed the cardiac orifice, she exclaims, "Oh, the pain!" The pain is not experienced in the act of swallowing, but when the voluntary portion of the act is completed, and whilst the wave is passing through the lower portion of the œsophagus. She is also constantly eructating air from the stomach, which does not smell offensive. The legs are helpless and œdematous up to the knees; the urine is scanty and high-colored; micturition frequent; alvine secretions soft and bilious in appearance. The heart's sounds are natural but feeble; there is no bruit of any kind, but the dulness on percussion reaches much beyond the natural boundaries.—Evening: The general duskiness all over the body is decidedly increased. She has the aspect of a true cerulean, and many of the symptoms of a choleraic patient. There is a true blue cast of skin, great thirst, intense heat all over her body, whilst the hands and arms become icy cold if they remain uncovered. The face is icy cold, and covered with a clammy perspiration; the rest of the body is also moist. The voice is sunken. The frequent desire to micturate has subsided, and about two ounces of urine only has been passed in the preceding twenty-four hours; it is loaded with urea, scarcely acid, sp. gr. 1027; a few blood-discs can be discovered, and a few exudation corpuscles; it is slightly albuminous. The pain in the chest and epigastrium is continuous; pulse 96; respiration easy, but 28; breath cold. The only symptoms wanting to make the case apparently one of cholera seemed to be alvine discharges and cramps in limbs; but the serous effusion appeared to have taken place into cellular tissue, instead of from mucous membrane.

On the 9th of June, in the early morning, the choleraic aspect was still very marked; there had been scarcely any sleep; pain was not mitigated; pulse 98, thready, feeble; the systemic veins, which had been full, now seemed empty, looking like threads upon the surface of the skin, and apparently very little blood reached them; the respiration 26; heart's sounds muffled, and the natural dulness on percussion extended over a wilder area than before, but no bruits or friction-sounds could be detected, though carefully searched for. As soon as the dangerous symptoms had developed themselves the general treatment was suspended, and such measures used as obviated the tendency to death. Thus, stimulants, ice, and sedatives were freely exhibited—the former notwithstanding the kidney congestion. At this time I had come to the conclusion that an embolism had occurred in close proximity to the heart, probably in the vena cava, extending into the right auricle. It appeared that some such condition could alone explain the sudden onset of the attack and the collapse which followed; the absence of physical signs of inflammation about the heart tending to produce this opinion. There was obvious obstruction somewhere, and it was evident that the condition of the patient was one of imminent danger. If at this time diarrhœa had existed, with rice-water evacuations, and the attack had been then fatal, the appearances of cholera would have been considered perfect.

On the 10th she was very prostrate; her night, she said, had been wretched, but the pain was not so intense. She complained much of cold in every part of the body. If any part was left uncovered for a short time the skin became icy cold; it was quite moist from excessive perspiration, but the face was not quite so lived. Pulse 106, feeble. She still has excessive thirst, but dreads to swallow because of the great pain immediately after each act of swallowing. Urine less than two ounces in twenty-four hours. Every exertion, such as raising the head, is immediately followed by rapid breathing. The act of breathing itself is not painful. She is herself scarcely aware of the shortness of breath. The mind is clear and free, without sign of delirium. At this time (4 P.M.) I had the advantage of Dr. Peacock's advice in consultation. She had then rallied somewhat; she had a less bluish cast, and the veins had to some extent lost their linear aspect. She was not so cold, the free exhibition of stimulants having apparently brought about a little rally. The condition of the chest was again examined, and, beyond the extended dulness on percussion, the physical signs were still unaltered. Dr. Peacock, from one visit only, did not commit himself to the embolism theory. He considered it not improbable, but to my mind there seemed a difficulty of understanding the pathology of the case on any other supposition. I could not, however, fix upon the exact seat of the impediment to the circulation, but that some interfering cause existed was sufficiently manifest.

Under the free exhibition of stimulants (champagne) she gradually lost her pain; the thirst and general distress, as well as the sweating, decreased; the face became less blue, and at length pale; the urine became more plentiful, but at the same time highly albuminous, with blood-casts; micturition exceedingly frequent. Some hesitation was felt at continuing the stimulants, and they were gradually decreased. The urine increased to four pints per day; but the œdema of the legs did not quite subside. Nevertheless, she seemed in a fair way of recovery, although she had occasional attacks of intense pain at the pit of the stomach and across the lower end of the sternum. On each occasion of return it was accompanied with rapid breathing and a dusky face, which continued, however, for a few hours only.

About June 20th the principal signs of imminent danger had passed away. On the 22nd the pulse was 96 and the respiration 23; the symptoms of kidney disease had decreased in intensity. Each day she seemed to gain strength, and she had altogether lost her pain.

On the evening of June 26th she again suddenly became restless, but with much pallor instead of lividity; the pulse ran up to 116. On the 27th it was found that she had passed a very bad night, had become much weaker, and for the first time complained of headache. The restlessness continued through the day, but on that night she slept for three hours, then awoke delirious, became excited and wild for a few minutes, then sleepy again; coma with stertorous breathing rapidly supervened, and she died at 9 A.M. on the 28th.

A post-mortem examination was obtained with some difficulty, and only on condition that not the smallest portion of the body should be removed. It was performed by Dr. Lanchester, assisted by Mr. Churchill, of St. Thomas's Hospital, thirty-six hours after death. It is most unfortunate that the interesting pathological specimen of obstructed pulmonary artery could not be preserved. The whole of the body was seen to be undergoing a rapid process of fatty degeneration. The cutis had peeled off in large flakes, which formed immense bullæ, as if the body had been scalded shortly before death. The heart was very large, without local signs of morbid change; but the whole muscular substance was soft and fatty. The right side was fully distended with dark-colored blood; the left side was empty. The pulmonary artery at its origin was partially blocked with a clot of fibrinous matter, which appeared to be breaking up. The clot sent branches into the ramifications of the artery for several inches; these did not block up the passages entirely, but floated like semi-cylinders in the current. The clot was undergoing a process of disintegration, and was dwindling away, although on the upper side of the pulmonary artery it was quite attached by organic connexions to its lining membrane. The lung-structure was slightly œdematous, but it did not show any signs of inflammation; it was darker in color than natural, but it was not gorged with blood—though this point was not proved by weighing the whole of the lungs. The kidneys were also undergoing the process of fatty degeneration; there were also large cysts in their structure, possibly from some portion of the clot having been arrested in the tissue and given rise to the arrest of urinary secretion at the very onset of the symptoms of collapse. The contents of the cysts were not examined for urea, but they had a decided urinary smell. We were not allowed to examine the head, but it seems quite certain that death was caused by the formation of a clot in the cerebral circulation, which clot most likely had its commencement in a nucleus from the disintegrating clot in the pulmonary artery, or possibly from a new formation in the bloodvessels of the brain. But for this accident life might have been prolonged for some time. The urine had been examined the day before death, and showed sufficient urea to prevent the idea of uræmic poisoning; and the amount of water passed during the night preceding death had been quite as much as usual, which had been (since the removal of the symptoms of collapse) in excess of the natural quantity.

The interest in this case centres in two or three points: the first being the impediment to the flow of blood from the right heart to the lungs. This impediment produced a set of symptoms analogous to cholera, and was not accompanied by the dyspnœa and distress which usually attend cardiac impediment. The shortness of breath was not perceptible to the patient at all, and not to the bystanders except on exertion. The blood which did get into the lungs was unoxygenated, and found its way into the arterial circulation without going through the capillaries of the lung-tissue, and so was not freed from its carbonic acid: hence the icy coldness, the cold breath, and with this the cold sweats, suppression of urine, sunken eye, and general collapse. These symptoms passed away as the clot gradually decreased in calibre, and a partial oxidation took place by a current of blood being forced by the side of the clot into the capillaries of the lungs. The absence of any cardiac bruit in the case should have led me to suspect derangement of the pulmonary artery; and it is probable that if the left interspace between the second and third rib had been carefully examined on the day on which hysterical symptoms showed themselves, a murmur would have been heard, and would have enabled me to distinctly localise the situation of the mischief; though it is still curious that this murmur was not redeveloped as the patient rallied. The pain which arose after the act of swallowing was probably caused by the pressure of the moving œsophagus upon the swollen pulmonary artery and full systemic veins.

There is much difficulty in determining the first cause of the clot; but I believe it had its origin in the dislodgment of a clot from the posterior tibial, or some vein in connexion with it which had been plugged by the pseudo-gouty attack with which the disease commenced. The patient had tried very perseveringly to reduce the swelling by friction on the day preceding the commencement of the general symptoms. This plug, being caught at or near the fork of the pulmonary artery, increased by accretion until the aëration of the blood was interfered with, then became altogether arrested, when collapse occurred. It could scarcely be the result of secretion at the spot of adherence, for this was at the point in the artery least likely to be a resting place for new matter, and yet very likely to arrest a foreign body; and the accidental block produced symptoms allied to cholera, though in the one case the cause was in the first instance mechanical, whilst in cholera it is probably due to an arrest of the nervous power by which the changes are carried on in the blood, as well in the lungs as in the capillaries of the body. In this case the blood could not be oxygenated by reason of a mechanical impediment; whilst in cholera it is the chemical or vital power, or both, which is defective.

Another point worthy of consideration in this case is the evidence it seems to afford of an alliance between cholera and albuminuria. At the time of collapse urea, and the materials out of which it is formed, were retained in the blood. Thus the liquor sanguinis was somewhat changed in its chemical composition, and from special cause there was a permeation of liquid through membrane—viz., into the cellular tissue instead of through the mucous membrane. This might at first have been much assisted by impeded circulation; but it was associated with defective exosmosis elsewhere, for the immense bullæ which formed after death must have had a physical rather than a vital cause for their production. Had there been an exosmosis through the mucous membrane, rice-water evacuations would have existed instead of the œdema. The agent for the production of this change, and therefore for the production of that disease, was wanting.

I propose to show what is the prime factor in the production of cholera; and, following the theory that x, y, z= cholera, to show the values which attach to each member of the proposition x, y, z, on the principle similar to that already expounded in the consideration of scarlatina.

High-street, Croydon, Sept. 1871.

SMALL-POX.

A Lecture delivered at the Homerton Fever Hospital.

By Alexander Collie, M.D.,

Resident Medical Officer.

[After a brief reference to the history of small-pox, and a short sketch of the disease in its mild form, Dr. Collie proceeded as follows:—]

We now come to

THE SEVERE OR CONFLUENT SMALL-POX.

Under this head we include those cases in which the eruption is more or less confluent, and the temperature and pulse become normal about the fourteenth day. This is the form met with in the unvaccinated, and in a certain number of the vaccinated who have passed the age of puberty. The initiatory fever does not differ essentially from that of the mild variety; but the headache, the pain in the limbs, and in particular the lumbar pain, are more severe. Trousseau mentions paraplegia as a not unfrequent symptom. Vomiting will be probably severe, and in children convulsions may be expected. Some mental confusion is nearly always present, and there is sometimes delirium, which occasionally is of a suicidal character. The eruption comes out a little later than in the mild variety, but it is much more abundant, and always more or less confluent. It is rarely confluent, however, over the whole body, but the disease is said to be confluent if it is confluent on the face. In the milder varieties of this form the eruption is usually discrete until it has reached the vesicular or pustular stage; but in the more severe form the disease is perceived to be confluent from the first. Instead of distinct, somewhat closely packed papules, the whole face swells, and forms a hard, doughy, elastic mass, slightly rough to the touch, not unlike the feeling produced by passing the finger over a piece of corduroy. When the eruption is well out, the temperature falls, and continues to do so up to about the eighth day. This remission sometimes ceases about the sixth or seventh, but hardly ever extends beyond the eighth day. Notwithstanding authorities to the contrary, we have found that in the severest cases the temperature falls after the eruption comes out, and that by the seventh day it has frequently become almost normal. This is the period during which the vesicle is formed, and it is one of comparative repose. But about the eighth day the vesicle begins to change its color. From a greyish white it begins to turn yellow, the faint redness which exists at its margin begins to brighten, and the temperature and pulse begin to rise. This continues during the next three or four days, the vesicles becoming more and more yellow, the redness round their edges becoming brighter, and the temperature gradually rising higher and higher. At the same time the whole face begins to swell; the eyelids close completely; but whilst the eyelids and their margin are thickly covered with the eruption, the eye itself remains quite free. Hebra has not found one instance in 5000 cases, and Mr. Marston out of 15,000 cases, only 26. In 1200 cases we have not seen the eruption upon the eye in a single instance. The morbid changes which take place in the eye are due to defective nutrition. The appearance of the face is at this period pathognomonic: the cheeks swell out, the lips are thick and protruding, and saliva flows copiously from the mouth. Sometimes the glands of the neck and those under the lower jaw are involved, and the head, face, and neck form one undistinguishable lump. In few diseases, indeed, is a more pitiable appearance presented; for the unhappy mortal, with his eyes closed so that he cannot see, his ears stuffed up with enlarged glands so that he cannot hear, and his tongue and mouth swollen so that he cannot speak, presents an appearance of misery seen in no other acute disease. In moderation, and if the pustules are not very confluent, the swelling of the face is a favorable sign; but in young children the swelling of the lips is dangerous. It prevents their sucking, and they frequently die of starvation. But in those cases in which the face remains flat, of a dirty-white pasty hue, where confluency is extreme, and pustules appear to form with difficulty or not at all, are always fatal. Such cases usually die about the tenth day. Towards the tenth or eleventh day the patient complains of pain in the throat; and, if you can manage to open the mouth, you will find the tonsils enlarged, and the upper part of the pharynx, the tonsils, and the palate covered with the eruption. This is occasionally a grave symptom, as it is sometimes associated with more or less laryngitis from the presence of the eruption in the larynx—a state of things which may end in suffocation. This condition ought always to be looked for, and tracheotomy performed in suitable cases. About the eleventh day the temperature will have reached its height, the contents of the vesicles will have become pustular, the bright-red circle surrounding the distinct pocks will be complete, and the pustules will begin to discharge their contents. In favorable cases the temperature and pulse will now fall, sometimes rapidly, at the farthest it will have become natural in two or three days, so that by the fourteenth day the patient will be convalescent.

The specific action of the small-pox is now at an end, and whatever further disturbances arise are due to sequelæ. The specific action of the small-pox poison ends with crustation; and we have not seen this prolonged much beyond the fourteenth day. The formation of crusts is in this variety dangerous to the patient, and loathsome and disgusting to those around him. As the matter escapes it dries, and in severe cases forms a crust over the whole of the face; the nostrils are almost closed; through little cracks in the scabs pus oozes out over the face, and especially about the nose. The stink is horrible; and more or less of this poisonous, fetid atmosphere the unhappy patient must breathe, whilst more or less of the same material is in all probability being absorbed through his skin. Decrustation and desiccation will naturally take a much longer period than in the mild variety, the patients sometimes bearing their scabs for weeks and weeks. In children's heads they are with difficulty got rid of. When the crusts have fallen off, their seat is found to be faintly elevated and of a pale color; but when the desiccation is complete, the seat of some of the pocks is found to be pitted, and the skin of a copper color. In process of time this coloration disappears, and only white cicatrices remain. These are not characteristic of small-pox, the same being found in acne pustulosa; but their uniform appearance on the face, and that in large numbers, is a condition of things found in small-pox only.

We shall now advert to a few symptoms which render this form of small-pox of more than ordinary gravity. Salivation is sometimes troublesome; it prevents the patient from sleeping, and makes him very uncomfortable; but occurring singly, without other symptoms of a fatal kind, and in moderation, it is rather beneficial. It comes on ordinarily about the eighth day, and lasts usually two or three days. We have not seen it much before the eighth day. Hæmorrhage from the mucous surfaces is not uncommon, but unless it occurs from all the mucous surfaces together, it is not of fatal import. So far as our experience goes, bleeding from the nose, the mouth, the bowels, and the uterus, if the bleeding be but from one of them, and not excessive in quantity, has no noticeable effect upon the disease. We have seen excessive hæmaturia with no apparent injury. Hæmorrhage, however, from the lungs and stomach is serious. But whilst hæmorrhage from the mucous surfaces is not generally of serious import, it is quite otherwise with hæmorrhage into the skin. If it exists only to the extent of producing a few scattered petechiæ, it is of small consequence, but if there appear many purple, bluish, and black spots, the case is always fatal. But besides these maculæ, a black spot sometimes appears in the centre of the vesicles. On its first appearance it is about the size of a pin's point, but it soon involves the whole vesicle. If this is seen in a few only, or at the termination of the disease, it is not a fatal sign; but if it appears about the eighth day, the patient will most certainly die. Such is small-pox in its ordinary severe form, but there is a variety of the disease much more fatal still.

THE BLACK SMALL-POX.

This form of the disease is invariably fatal; at least, says Hebra, there is no case of recovery on record. The eruption is uncertain and irregular, the papules and vesicles few in number, and there are never any pustules. Livid, blue, and black spots, fading into violet and yellow, and early death, are invariable. The mind is calm, clear, and even cheerful, up to the last moment. We have had twenty-six cases of this kind. Ten occurred in children under fifteen, all unvaccinated. Of the sixteen which occurred after that age, several were said to have been vaccinated, but we only verified four instances, and they were not, in our opinion, very good. But one thing which our experience here has impressed upon us is, that some primarily well-vaccinated persons are after puberty in the same position as those who have never been vaccinated at all. The worst case of black small-pox seen here was a case of Dr. Gayton's, in which there were two to three typical cicatrices, and the vaccination was said to have been performed only three years before puberty.

But to return. This form of the disease is so variable that it is extremely difficult to give such a description as shall apply to all the cases. Still there are some common features. The illness is ushered in by fever of very variable intensity; it is not, so far as we have observed, higher than that which occurs in the variety already described. But instead of the ordinary eruption following, a dark-livid efflorescence appears, in which spots of a violet-blue and black color are shortly seen. There will be conjunctival ecchymosis—an almost invariable symptom. There will certainly be hæmorrhage from some of the mucous surfaces, and probably, in the majority of cases, from all of them. The glands of the groin will be found to be enlarged, and, if the patient lives long enough, a few papules, which may change into something like vesicles, will form, probably about the knuckles or toes. They are not real vesicles, rather more like tubercles; they are hard, flattened, and circular, and very few in number. They never become pustular; in fact, the patient always dies before the pustular period arrives. On the face papulation or vesiculation may be entirely absent. On various parts of the body, as the arms and thighs, hard, black tumours occasionally occur, and large black patches, fading into violet and yellow, are seen, just as if the patient had been soundly beaten with a stick. Black eyes are a not uncommon feature. On the first occasion that I saw this it was in a woman, whom I asked if she had been fighting, as the appearance suggested this mode of origin. One very remarkable feature is the calm, intelligent, and even cheerful manner of the patient. Up to the last moment the mind is perfectly clear, Hebra to the contrary notwithstanding. The pulse is usually high. We have noted 170, 180, and 200 beats per minute; occasionally it has been about 100. The temperature is not excessive, 105° F. being the highest we have observed, whilst in the severe or confluent cases we have observed 106°, 107°, and in one case 108·4° F. Just before death it sometimes falls, and sometimes attains the maximum temperature of the illness. The patients die early, rarely living beyond the eighth day; and sometimes death occurs as early as the fifth, sixth, or seventh day of the disease. However, there is now and then an attempt, as it were, at papulation and vesiculation, and a few distinct vesicles may arise; but they become rapidly black, and never pustular. An occasional feature in these cases is the presence of a scarlatiniform eruption, which is sometimes limited to the lower part of the abdomen, the groins, and the inner surface of the thighs. As a simply scarlatiniform rash it is seen in mild cases, and is of no consequence; but here it soon acquires a marbled blue and black color, and is then always a fatal sign. Sometimes the patient's skin is like a boiled lobster, with a few hardish tubercles scattered about; sometimes it is quite blue, and sometimes it is of a deep brown. To sum up: ecchymosis into the conjunctiva, bluish-black spots, variegated scarlatiniform hæmorrhagic rashes; a few hardened, flattened, circular tubercles about the fingers or toes; bleeding from some or all of the mucous surfaces; enlargement of the inguinal, the axillary, or the cervical glands; and occasionally hard black tumours in the thighs, arms, or cheeks, are the symptoms of black small-pox.

Of course these symptoms are rarely found all together, but usually one of all is "enough to do the business." This form of small-pox is frequently taken for malignant typhus and malignant scarlet fevers, but to those who know these diseases well there is no difficulty in recognising them.

Of *complications*, the most fatal have been those of the chest. Of six cases of pleurisy we have had two deaths. True pneumonia has been rare in our experience; we have only seen two or three cases. Bronchitis is not uncommon, but it is rarely severe enough to be of much consequence. Erysipelas, abscesses, and sloughing of the skin are very common and sometimes fatal. We have had one death from erysipelas, and that occurred after a milk attack. We have had one case of pyæmia associated with abscesses, two cases of orchitis, one parotitis, and one of otitis. The eyes are very frequently the seat of ulceration, which appears in the majority of cases towards the termination of the illness. In one instance an old woman lost both eyes. One woman lost one eye, and one girl and a boy each lost an eye. We have had one case of ophthalmitis. Four women died after abortion; but we have had a few labours without injury to the mother, although one child only survived. Pregnancy has not been observed to be a grave complication, many pregnant women having gone through the disease without injury. We have not observed inflammatory conditions in any organ of the body other than those already mentioned. In no case have we had reason to believe that small-pox was complicated with scarlatina or measles, although we have had sometimes during the first few days a little difficulty in deciding between the former affection and small-pox. No case of measles has been sent here, but we have had four cases of scarlatina, one case of psoriasis, one of urticaria, one of eczema, and a few of *nil.* We have had one case in which small-pox occurred in the same individual for the second time; the young man was well pitted by the first attack, and the second was well marked. Variola sine eruptione or a relapse we have not observed.

The *post-mortem appearances* may be described in brief terms. The eruption of course persists, and in black cases petechiæ and black patches are seen upon the skin. Various lymphatic glands will be found enlarged. Congestive conditions of the internal viscera are common, particularly in the lungs. Over the upper part of the pharynx, on the palate, the tonsils, the tongue, the vocal cords, and the larynx, extending sometimes into the trachea, will be seen a vesicular eruption corresponding to the vesicular eruption on the skin. Usually the mucous membrane is softened, and this condition is found to extend into the bronchi. We have never found anything like pustules in any internal part of the body, and the vesicular eruption internally has been always limited to the parts already mentioned. In black cases ecchymoses will be found in the mucous and serous membranes. There are of course sometimes inflammatory products in the chest or, rarely, in the abdomen, but there is nothing characteristic of small-pox in them. The mesenteric glands are enlarged, but Peyer's and the solitary are healthy. The brain is almost normal, but with ecchymoses in the pia mater in black cases.

ON THE TREATMENT OF CHOLERA.

By T. M. Lownds, M.D.,

Retired H.M. Indian Army.

As it is most probable that we in England may ere long have a visitation of Asiatic cholera, I may be permitted to describe a plan of treatment which I found in India, in a series of years, more efficacious than any other, and it is the only one which in my hands gave any approach to a regular result, or seemed to afford great benefit during the stage of collapse.

I may premise shortly, in reference to the pathology of Indian cholera, that the disease is one which, according to the severity of its type, kills in two ways:—1st. In those cases almost or wholly without vomiting and purging the whole amount of the blood is so "devitalised" or destroyed that death takes place in three or four hours, without more than the collapse stage being manifested. 2nd. The ordinary form, in which the first manifestations are, malaise, internal qualms, followed speedily by purging of the contents of the intestines, then evacuation of the stomach; this is followed in many cases by recovery, but in a great majority of cases by purging and vomiting of the true choleraic rice-watery discharges, succeeded, after a greater or less number of hours, by collapse, in which either the patient succumbs or reaction takes place.

For convenience of reference, I would consider the treatment of the common form of Asiatic cholera under four heads:—1. Choleraic diarrhœa (cases coming early for treatment at a time when cholera is present, but before the diagnostic discharges have come on). 2. True cholera, characterised by rice-water discharges. 3. Collapse. 4. Reaction.

Though I saw a very large number of cases of cholera, I never saw one of the exceedingly rapidly fatal cases; but that they occur is well known, though it is scarcely to be expected that any treatment should avail, any more than it would were a large dose of a quickly acting poison injected into the blood, and no treatment applied until its effects were fully developed.

In the second kind of cholera, choleraic diarrhœa, or what I have called the first stage of cholera, is especially amenable to treatment. In India I always found the stomach and bowels so completely emptied of their contents that these patients were quite prepared for the administration of a draught containing a stimulant antispasmodic combined with opium. The medicine I generally used was ten to fifteen drops of chloroform with about the same or a greater amount of laudanum, dissolved in three or four drachms of brandy or arrack, and given either in plain water or preferably in an effervescing draught. As a general rule, one dose of this mixture was sufficient to control the diarrhœa, and the patient returned to his bed and slept, usually waking quite well. The dose might be repeated, if necessary, every two hours or more frequently. This is the plan I pursued, and it was successful; but I have not the least doubt that any stimulating sedative would act well; in fact, the experience of various remedies in India has proved this.

When the disease has progressed to, or come under notice in, the second stage, opiates were far more sparingly used, a dose or two of calomel given, and sinapisms applied to the abdomen; a drink, consisting of one drachm of chlorate of potass with eight or ten drops of strong muriatic acid and one or two drachms of dilute nitric acid, to twenty-four ounces of water, was also given, in one- or two-ounce doses, at the will of the patient. The pulse, if this stage continues for any time, speedily becomes weak and very rapid. As soon as the rice-water discharges appeared, I generally ordered two ounces of Liebig's cold soup* every half-hour.

In the third stage, or that of collapse, all medicine except the cold soup and the chlorate of potass drink are discontinued.

Of the fourth, or stage of reaction, little need be said. In treatment of it we must be guided entirely by general principles. Since I treated cholera as I have sketched it above, I have not seen a single case of consecutive fever. The last case of after-reaction that I treated in India was one of great turgescence of the fauces and larynx, with blood-spitting; it was treated simply, and did well.

My experience of the effect of the cold soup, first used in consultation with Dr. J. Ogilvy, now of H.M. Artillery, dates from 1860, when it was administered to an officer of H.M. 33rd in commencing collapse, which ceased after twelve or fourteen hours, and the patient did well without any consecutive affection except a smart attack of gastritis, easily subdued. In the next few days two other cases occurred; one was collapsed for twenty-four hours, the other for three days. These two cases were admitted at a stage too late for opium and stimulants; both did well. The first two doses of the soup I have seen change the entire aspect of a case, from pinched features, choleraic voice, cold skin, and uncountable pulse, to a state of comparative comfort. The pulse, though thready and very quick, was countable, and the eyes were not so sunken. Yet the choleraic rice-water discharges and the absence of urine continued for three days. I have never seen the soup vomited, or cause an inclination to vomit. One patient, before reaction took place, said he much disliked it, and begged for sago, which was given him, but it instantly occasioned vomiting, and he gladly returned to the red-looking soup. The soup may be administered too largely. In one very severe case a portion was passed per anum colored as it was taken. On inquiry I found that large doses had been given to this patient, a boy of thirteen, by his friends, as he derived so much benefit. The doses were reduced, and the stools resumed their former choleraic hue. I have never seen the sweating occur that so generally accompanies collapse. In fact the soup seemed to increase the strength of the pulse and restore the heat of the body in some cases, of which I have notes, as much as three days before a drop of urine was passed, and yet I felt assured that the patients were doing well. Usually from three to four distinct cholera stools were passed, and sometimes the patients vomited as often during the twenty-four hours; this was before micturition was restored. In one case a healthy bilious motion occurred on the third day from the commencement of collapse, and was followed by a renewel of the rice-water discharges for twelve hours, yet without any appearance of hurt to the patient's general state. A marked feature resulting from the use of this aliment was that the patients commonly slept some hours each night. They were of course entirely confined to the recumbent position as soon as the second stage supervened.

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* Made by digesting eight ounces of raw lean meat, finely minced, in twenty ounces of cold water, to which eight or ten drops of strong muriatic acid and a little salt had been added, for a quarter of an hour, and then straining. This soup will not keep more than a few hours on a hot day.

Of the action of the soup little need be said, and almost all that is required is summed up in a remark made to me by Dr. Ogilvy when discussing the results of the first two cases in which it was tried—viz., that the soup seemed to supply to the blood exactly what the discharges had removed. I believe the cold soup to be infinitely superior to Liebig's extract, for it contains all the elements of the latter in addition to coagulated albumen, and, like the extract dissolved in water, it passes into the vessels of the stomach without any digestion whatever, but only by absorption. I believe it simply affords to the blood power to battle with the disease, and supports it while the poison and its products are eliminated from the system.

The chlorate of potass drink I gave under the idea that it might help to oxygenate the blood; and in one case, while the soup was preparing, it was administered to a patient distinctly in the second stage of average severity, who immediately said his stomach was warmed most remarkably; in fact, complete recovery without collapse resulted. Whether, because *post hoc*, it was really *propter hoc*, it is impossible to determine; but in a disease like cholera all are specially apt to cling to a remedy which even in one case has appeared to have a markedly beneficial effect, and to which, even after long trials, no harm can be attributed.

In 1857, in Bombay, I tried, beyond the ordinary nourishment and dry heat then generally used, water saturated with nitrous oxide as a drink. Six patients out of seven (five of whom were in collapse on admission) recovered under this oxygenated water, and the remedy was not administered to the fatal case until twelve hours after admission, as his condition seemed so hopeless. But these cases occurred at the end of an epidemic, so that too much reliance must not be placed upon them; still warmth appeared promoted, and the cases at least settled the point that the oxygenated water was not productive of harm. The cold soup seemed to fulfil a further indication, and very considerable influence on the disease appeared due to the treatment as mentioned above.

The great point in cholera is, I believe, early treatment, and in the first stage nothing is more convenient than the old cholera pill as advocated by Dr. Murray, but I believe its use is strictly limited to the first stage. No medicine in the form of pill should be given after that stage, as pills are especially liable to be ejected with the first efforts at vomiting in the second stage. Should the disease become epidemic, these pills might be extensively distributed for early use before medical aid could arrive.

I may add to these hurried notes that, with proper attention to removal of excreta, I have never seen a single attendant attacked with the disease.

The views of treatment which I have advanced in this article are a *résumé*, with added matter, of a paper entitled, somewhat presumptuously perhaps, the "Rational Treatment of Cholera," in the Transactions of the Bombay Medical and Physical Society for 1860.

Egham-hill, Aug. 21st, 1871.

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ON

THE INITIAL PATHOLOGY OF CHOLERA WITH REFERENCE TO TREATMENT.

By William Sedgwick, M.R.C.S., &c.

The very large proportion of deaths from cholera during reaction, which has been observed as a result of the castor-oil treatment, tends to prove, that increased irritation of the gastro-intestinal mucous membrane serves to intensify the disease. This effect of "cathartics" in cholera is simply a practical illustration of what might, from the knowledge we now possess of the initial pathology of the disease, be theoretically expected to follow their use. For previously to the occurrence of the rice-water flux, there is diminution and partial arrest of the abdominal sympathetic nerve-influence, and consequent feeling of *malaise*, which is, strictly speaking, the premonitory stage of the disease. It would appear, from the late Dr. Prout's observations on the composition of the urine, that the standard of organic change is, as a rule, lowered during the prevalence of an epidemic of cholera, whilst it has been ascertained by the observations of myself and others that, at the same time, both the force and the frequency of the pulse are reduced. Special attention was directed to this important subject in the valuable Report of the Cholera Epidemic of 1865 in the Maltese Islands, by Messrs. Adams and Welch, who observed that there was in many cases a period in the disease anterior to the setting in of the intestinal flux, and they state that advantage was taken of it by Mr. Comyn, Surgeon, R.A., in order to get the affected under his control as early as possible; and that, out of forty-two cases carefully noted, this condition was found to exist clearly and unmistakably in twenty-seven. The state of the pulse, as might be expected from the relation subsisting between the sympathetic nervous system and the circulation of the blood, is a valuable guide in this premonitory stage of the disease; and M. Cl. Bernard,* in referring to it, informs us that "a Russian army physician, who had invented a new sphygmometer, and had applied it to the study of various diseases, stated some years ago that, during a severe epidemic of cholera, a peculiar slowness of the pulse existed several days before the explosion of the disease, in those who were marked out to be its victims." But, notwithstanding the improved aids to diagnosis which we now possess, it is still to be regretted that the first indications of the disease have not been more generally and more closely investigated, especially in the public service, and in large schools and other institutions to which a medical officer is attached, and who might in this way be enabled to establish a sounder system of preventive treatment.

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* Medical Times and Gazette, Feb. 4th, 1860, p. 111.

This premonitory stage of the disease, which varies in duration from a few hours to one or two days, is, as a rule, quickly followed by increased secretion from the alimentary mucous membrane, and subsequently by a rice-water flux. Now, with reference to this rice-water flux, it is important to remember that it is not exclusively characteristic of cholera, but that it may occur also in other cases in which, as in cholera, there is a neuro-paralytic condition of the digestive canal; for it has been observed in many of those cases which have been referred to in my paper on the Analogies of Cholera, especially when irritant and corrosive poisons have been swallowed, the effect of which, as was pointed out more than a century ago by Dr. Richard Mead (vol. i., 1763, pp. 13, 14), is to "wound the nervous coat of the stomach" and to "interrupt the secretion of urine." A typical case of this kind has lately been published by Professor Virchow; and precisely the same kind of flux, both as regards its physical appearance and its chemical composition, can be experimentally produced, as Prof. Moreau has lately demonstrated, by section of the abdominal sympathetic nerves.

In consequence of the great progress which has been made of late years in experimental physiology, not only has much doubt respecting the initial pathology of a flux been removed, but it has, moreover, been satisfactorily demonstrated that when, for example, the upper portion of the alimentary canal has been deprived of its supply of nerve influence, it becomes peculiarly susceptible of local irritation, and liable to be affected by causes relatively slight, and which would otherwise fail to produce any serious disturbance. There ought to be no difficulty on this occasion in applying the knowledge derived from experimental physiology to the study of disease, and in estimating the probable facility with which, during the prevalence of an epidemic of cholera, not only "cathartics," but even food itself, if it happens to be unsound or difficult of digestion, may, especially if taken over-night, give rise to the disease. One of the first cautions which I received on proceeding to India, many years since, in medical charge of a detachment of H.M. 70th Regt., was to avoid incurring this risk; and subsequent observation has to some extent enabled me to recognise the special need of caution in this respect. It is probable that the predisposition of the alimentary mucous membrane to disease, at such a time, is less due to the influence of night than of sleep; and that Dr. Macnamara's suggestion that "this circumstance may perhaps be explained by the fact that the whole of the secretions of the alimentary tract are then alkaline," is correct. If so, it would afford an additional argument in favor of the administration of acids, and especially of the phosphoric acid; and it would increasingly justify the condemnation which has been pronounced on the "cathartic" treatment of cholera.

The progress of the disease, as nearly all the recent literature of cholera contributes to prove, is throughout opposed to any system of purgation; and a careful and scientific investigation of the stage of convalescence, especially with reference to the occurrence of temporary glycosuria, like the study of the initial pathology of the disease, will satisfy any unprejudiced observer that all the phenomena of cholera are, from first to last, opposed both to the theory and to the practice of purgation, either by means of castor oil or by any other "cathartic."

In conclusion, therefore, I would beg to express my regret at the unscientific tone which has lately characterised some of the discussion on this subject, and the injudicious zeal which has been displayed in favor of the so-called "triumphant advocate" of a theory which is now no longer tenable, and of a practice which has been very justly and very generally rejected by the medical profession both at home and abroad. The authoritative sanction of a great name necessarily fails to give support when it is unaccompanied by any conclusive facts or by any fresh evidence derived from personal observation. And I cannot but feel, in common I would fain hope with a very large majority of the readers of THE LANCET, that in the presence of so great an evil as cholera undoubtedly is, all personal vaunts should for the future cease, and that the little jealousies of work-day life should be, if possible, suppressed.

Park-place, Upper Baker-street, September, 1871.

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PERFORATIONS OF THE MEMBRANA TYMPANI.

By W. B. DALBY, F.R.C.S., M.B. Cantab.

(Concluded from November No.—p. 585.)

THE tympanic membrane is liable to be accidentally ruptured in several ways: By violence applied from without, such as a pin or piece of wood, &c., thrust into the ear; a blow or fall on the head, with or without fracture of the skull; an unexpected concussion by a box on the ear, or a loud explosion close to the ear; by violence applied from within, as in blowing the nose vigorously or vomiting. For the most part such accidents are followed by more or less impairment of hearing, even after the rupture has healed. The greatest degree of deafness, however, generally follows when the wound has been caused by a blunt-pointed body used with a good deal of violence. If it is done with a sharp-pointed instrument which makes a clean cut, the opening will in a few days heal, and often without appreciably affecting the hearing. This is an interesting point in connexion with these injuries, as it coincides with what would be expected when comparing the accident with the operation of incising the membrane in cases of tympanic disease. Here an incision of some extent is made, there is considerable difficulty in keeping the wound open, and it will not unfrequently close in two or three days.

H. B——, a man aged thirty-six, had been picking his right ear with a pin; his hand slipped, and the head of the pin went through the membrane, causing him most sickening pain. I saw him four days afterwards, and he was then in a good deal of pain, and had constant tinnitus. There was a small perforation at the upper and posterior part of the membrane, from which exuded a clear discharge. He could just hear a loudly ticking watch four inches from the ear. After the perforation had healed, which it did in six weeks, he was still deaf to the same extent.

A somewhat similar case is related by Mr. Toynbee, in which the chorda tympani was injured. The accident was caused by a twig penetrating the ear as the patient was getting through a fence while out shooting. The hearing, after the perforation had nearly healed, remained very imperfect—half an inch for a watch. A very fragile object is sometimes sufficient to rupture the membrane. Dr. Von Tröltsch records two cases in which the injury was caused by a blade of straw. The fact of the tympanic membrane being able to withstand violent shocks, as from forcible pressure of air in the case of a child having a box on the ear, or a violent expulsion near the ear, when these forces are expected, was explained by Mr. Toynbee as being due to contraction of the tensor tympani.

The serious effects of unexpected concussions are not confined to the membrane, permanent injury to the tympanum and labyrinth often following them. I saw not long ago a boy of sixteen, who had been totally deaf on the left side for some years. A few days before, while he was at play, he received a very sound box on the right ear from another boy, who came up behind him without being seen. The tympanic membrane was ruptured in a line with the handle of the malleus, and the deafness was very great. He could not hear a loud watch in contact, and required a raised voice close to the ear for conversation. The hearing afterwards did not improve. One case of rupture of the membrane, occurring during a violent fit of vomiting, left very great deafness. This accident happened to a man sixty-three years of age eighteen months before I saw him. He could not then hear a loud-ticking watch in close contact with the ear, and the perforation had not closed. He could still blow freely through it. At the time of the accident he felt a crack in the ear, and it was followed by a little bleeding. This was rather an exceptional case, for, as a rule, ruptures caused in this way heal in a short time, as do also most accidental perforations of the membrane, except those caused by violent force with a blunt instrument. These are often followed by suppuration in the cavity of the tympanum, and are liable to get into the same condition as perforations caused by suppuration behind the membrane; but, speaking generally, they eventually heal. The force used in such an accident may be so great as to fracture the handle of the malleus, and there are on record several cases of this kind. But although with such a complication the hearing will be greatly impaired, it may be equally so when the force used has been considerable, even if the bone is not fractured. Perforations may occur when the ears have been syringed with ill-directed zeal for the supposed presence of cerumen; by this I mean when the operator has syringed the ears without satisfying himself of the presence of cerumen by using a speculum and reflected light.

Oct. 1870.—J. E. A——, aged fifty-three, had always been deaf in the right ear. The hearing of the left ear had been good till two months before. He then suffered from tinnitus, for which the ear was syringed, but without bringing away any cerumen. At the time he had acute pain, which was followed by a good deal of swelling of the meatus, and in two or three days by a profuse discharge. When I saw him he had a discharge and a rather large perforation at the inferior and posterior part of the membrane. The rest of the membrane was covered with granulations. He suffered from constant tinnitus, and could just hear a watch pressed against the ear. Under appropriate treatment the granulations disappeared and the discharge subsided in four weeks, but the hearing and tinnitus were no better. The case was not seen afterwards, so I cannot say whether the perforation healed or not. In any case, however, judging from the ordinary termination of these injuries, when there is so much deafness, it is not likely that the hearing would greatly improve.

As these cases are not generally seen for some days after the accident, it is not always easy to say whether the stream of water immediately ruptures the membrane, or whether the injury gives rise to inflammation which results in a perforation. A healthy membrane would offer very considerable resistance to a stream of water; and I should think that, for the most part, the perforation was secondary. This appears to have been the case with a young lady whom I saw last summer, four days after the ear had been syringed. She said that for the whole of the same day and following night she suffered acute pain; and that in the morning the pain went away, and a discharge appeared. At one spot she could blow through the membrane, which appeared to have given way without any appreciable loss of substance. The discharge was very slight. A watch was heard at six inches from the ear. Air was passed into the tympanum every day on Politzer's plan; and the hearing gradually improved till, after ten days, it was normal, and within three weeks the perforation had healed.

In examining recent injuries of this kind, in addition to inspection, it is well to verify the diagnosis either by getting the patient to blow through the perforation with the nose and mouth closed or by passing air through on Politzer's plan. The treatment will naturally be of the simplest character. If there is any bleeding, the blood should be carefully removed with a syringe; and if there is much pain, two or three leeches should be applied behind the ear and in front of the tragus. This should be succeeded by fomentations till all pain is gone. In case of the rupture not healing in a few weeks, and a discharge being established, the same treatment should be pursued as in perforations which are the result of disease.

Grosvenor-street, June, 1871.

TWO CASES OF

MEDULLARY CANCER OF THE BRAIN.

By. F. Norton Manning, M.D.,

Inspector of the Insane.

The subjoined memoranda of two cases of medullary cancer of the brain seem to me interesting from a pathological point of view. I am not aware if general experience accords with mine that the pathological condition is a rare one.

Case 1.—C. W——, age about sixty, a native of England, was arrested by the police at Cooma in New South Wales, being found wandering about, and unable to give any rational account of himself. His previous occupation and the duration of his malady could not be discovered, and the chief symptoms mentioned in the medical certificates for his admission into hospital were: "A vacant, expressionless stare, inability to express himself intelligibly, dirty habits, remaining in one position for hours, inability to tell his age or history, and complete loss of memory."

He was admitted into the Hospital for the Insane, Gladesville, New South Wales, on October 7th, and the following are the notes made on admission. He is a short, thick-set man, fat and flabby, and of a fair complexion. His mental condition is one of far advanced dementia; his expression is vacant; the eye, which is much congested, has a fixed stare. He is unable to return an intelligible answer to the simplest question, but makes silly and inconsequent remarks in a hoarse, thick voice. He walks feebly (but without any paralysis), and requires constant attention to keep him clean, as he frequently passes his water without moving from his seat. Face congested. Appetite good; and he rests well at night.

Oct. 17th.—Seized this morning with complete paralysis of the right side. The mouth is much drawn to the left, and there is external strabismus of the left eye, with fixed dilated pupil. Deglutition is difficult. The breathing is very noisy, especially when asleep. Is quite unable to articulate, but nods his head when spoken to, and seems pleased with any attention.

Nov. 10th.—Has recovered a little power in the right hand, but is unable to move the forearm or arm, and the leg is completely powerless. He takes a fair quantity of food, though with difficulty, owing to the impaired powers of deglutition. The breathing continues extremely noisy. The conjunctivæ are both much congested, and the head is very hot. He emaciates somewhat rapidly.

30th.—Slowly becoming more feeble.

Dec. 1st.—Has had another paralytic seizure. Loss of power is again complete on the left side, and he has sunk into a comatose condition.

3rd.—Died.

Autopsy, eight hours after death.—The scalp was very adherent, and the skull-cap thick; membranes of the brain much thickened, especially on the right side, where they were of a pearly white color. The arteries at the base of the brain were tortuous and much dilated, but free from abnormal deposit. The white substance of the cerebrum was remarkably firm, and on the right side cut with an almost cartilaginous hardness, although the appearance of the structure was normal. In the left hemisphere were two deposits of cancerous matter. The smaller, about the size of a walnut, occupied the convolutions at the outer convexity of the hemisphere, but did not extend into the white substance, and was firm throughout. The larger, which was about the size of a small orange, occupied the centre of the hemisphere, had softened to a semi-fluid condition in its centre, and was deeply stained with blood. Several small clots also occupied the centre of the tumour. The cerebellum was firm, and the medulla oblongata remarkably hard, and the fibres passing through it very distinct. Portions of the cancerous masses placed under the microscope exhibited all the appearances of ordinary medullary cancer.

Case 2.—C. W——, aged about fifty, was forwarded to hospital from a station about 300 miles up country, subsequent to the signature of the usual certificates of insanity. The symptoms of insanity were, however, entirely of a negative character, and were all owing to complete loss of sight and hearing. On admission (January 18th, 1871) he was extremely thin, with a worn cachectic look. He was absolutely blind, both pupils widely dilated, the right, however, most so, and quite fixed. There was slight external strabismus of the right. He was absolutely deaf, paying no attention to the loudest sound. The left ear did not seem less affected than the right. When touched or shaken he immediately said, "What is it?" "What do you want?" or "Give me some brandy;" but he never made any remark or exhibited any want except when roused. His usual condition was one of deep lethargy. He would remain for hours in one position, and passed his water and stools under him. He had a feeble, tottering gait, but there was no absolute paralysis, and the sense of touch seemed intact. He took all food given to him readily and with apparent relish. For the first few days he made slight physical improvement, walked somewhat better, and lost a little of the worn look which distinguished him on admission. The cachectic appearance remained, and neither sight nor hearing improved. On Feb. 10th he had an apoplectic seizure, and remained quite comatose until early on the 12th, when he died. It was found impossible to ascertain anything of his prior history, except that the symptoms came on gradually.

Post-mortem examination.—Body much emaciated. The skull was remarkably thin throughout, and in certain spots immediately over the Pacchionian bodies was quite transparent. In three places, one immediately over each frontal sinus, and the third on the vertex, the inner surface was deeply pitted; the thickness was only that of an extremely thin outer table, and it was curiously transparent. The glandulæ Pacchioni were much enlarged, and firmer in consistence than natural, but, so far as could be judged by ordinary inspection and by examination under the microscope, were free from abnormal deposit. The substance of the brain was, both in grey and white matter, firmer than usual. The left ventricle contained a fair amount of serum. The right contained a small blood clot, and on removing this the whole posterior part of the floor of the ventricle was occupied by a broken-up, blood-stained cancerous mass, which extended through to the base of the brain, and was firmly adherent to the dura mater along the middle third of the ridge of the petrous portion of the temporal bone. The dura mater in this situation was deeply blood-stained, but the growth did not extend to the bone. Neither the optic nor auditory nerves were implicated in the tumour, but the seventh nerve of the right side was quite adjacent to it. The vessels of the brain were much congested. The tumour, under the microscope, exhibited all the appearances of ordinary soft cancer.

Gladesville, near Sydney, N.S.W., Feb. 1871.

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TWO CASES OF PUERPERAL CONVULSIONS,

TREATED BY MANUAL DILATATION OF THE OS UTERI AND INSTRUMENTAL DELIVERY; RECOVERY.

By E. Holland, M.D. Lond., F.R.C.S.E.

In the course of the year 1869 it was my professional fortune to be called upon to treat two cases of severe puerperal convulsions in the duration of one week, and as there were certain peculiarities attached to each, some novelty in the treatment adopted, and in each instance a good recovery, I regard their brief announcement to be as desirable as it must be interesting.

Case 1.—A tall, full-fleshed, rather ruddy, and tolerably vigorous rural primipara, the subject of aortic regurgitation and some hypertrophy of the left ventricle, with habitual constipation and albumen in the urine, was suddenly seized with epileptic convulsions, about the middle of the seventh month of her pregnancy, after a few hours' premonition of hazy vision, headache, and incipient labour pains. The convulsions were very severe, recurred at intervals of ten, fifteen, or twenty minutes, and were followed by insensibility and coma. The rectum was full, the os uteri massively thick, and open to the extent of a shilling, but the presentation could not be decided upon. The pulse was enduringly quickened, and forcible. An enema of gruel, containing an ounce of castor-oil and a flavoring of turpentine, was prepared with despatch, and administered after about a pint of blood had been drawn from the arm; the bladder was emptied by a catheter, the hot head had cold water applied to it, and the legs were wrapped in turpentine stupes. After the bleeding there was no fit for twenty-five minutes, and during this interval a piece of deal was placed between the teeth. The fits now recurred every ten or fifteen minutes with the pains, and were equally severe and prolonged, whilst the intermediate coma, if anything, deepened, and left scarcely a shadow of hope that she would recover. An anxious hour or so still passed, during which the convulsions were decidedly severer and more prolonged, and something was to be done. I now determined to introduce my hand (a small one) into the vagina, and to dilate the os uteri (now but little altered) by introducing finger after finger, until I could work in the hand, turn, and extract. After about an hour's manipulation of the os, I succeeded in getting in the hand, and no sooner was it there than it came upon the fœtal feet, which were seized, and the extraction cautiously proceeded with, both during the pains and their intervals. As the shoulders came along, much caution was used to sweep the arms from the grasp of the uterus, and when all but the head was released from the uterus the latter became forcibly contracted upon it and round the fœtal neck. As the convulsions recurred, the uterine action was more powerful than I ever experienced; however, in the intervals of the seizures I contrived to insinuate my fingers and perforate the head behind the ear, and then, by very protracted efforts, effected its delivery by the conjoint use of the blunt hook and the fingers of the right hand. As soon as the child was delivered the convulsions ceased, and never returned. A comatose state continued for some ten or twelve hours, but yielded to a large blister on the nape; and, excepting hazy vision and occasional headache, she made an uninterrupted and speedy recovery, with no indication of uterine injury, and, quickly becoming pregnant again, miscarried about the eighth month, without convulsions.

Case 2.—A short, slim, and pale multipara, aged forty-two, with mitral reflux and albuminous urine, was suddenly seized, about the seventh month of pregnancy, with epileptic convulsions, after having been reduced to a state of incipient collapse by a severe attack of diarrhœa. When visited, the head was cool and perspiring, the legs and feet cold, and the pulse quick and feeble. There was a convulsive seizure about every ten or fifteen minutes, and a semi-conscious state in the intervals. A vaginal examination revealed the fact that labour had commenced. Altogether the case was as disheartening as any case could well be; but, fortified by my recent experience of the preceding case, I ordered hot bottles to the feet, turpentine stupes to both legs, and brandy-and-egg mixture to be cautiously smeared over the interior of the mouth. I watched an hour or so, and matters got worse. I then resolved to dilate the os uteri, as in the preceding case, and deliver by perforation or otherwise as quickly as possible. After an hour's digital manœuvring, I effected an entrance of the hand, and found a head presenting. I then immediately perforated; but, after the escape of the brain, I had to remove the skull-cap piecemeal before I could get a firm hold. At last, however, after many a slip, I got a purchase on something, which turned out to be the clavicle, and by it I extracted a small female child of seven or eight months, drawing the uterus down, however, to the very outlet, where its retirement over the fœtus could be seen. The placenta followed; but, to mend matters, I now found there was a second fœtus in the uterus. However, as there had been no fit for a good twenty minutes, and no additional complication, I let well alone (having always derived advantage from that maxim), and watched. Presently there was a strong pain or two, and the second child, enveloped in its membranes, and with its placenta, was expelled *en masse*. The patient had no more fits, took an opiate, and made a very rapid and complete recovery.

Both these cases were severe. Both were treated on general principles as far as the bodily health was concerned. In both the fits recurred with increasing violence, and their intermediate coma deepened, despite every general measure. In both cases the os uteri was dilated from a very small size by the introduction of finger after finger; and in both instruments were freely used during an operation of several hours. In neither case was there any consideration to be given to the child, it being premature, and well known in the majority of such cases to be born dead. In neither case was there any fit after complete delivery of the child, or any indication of uterine injury; but, on the contrary, a rapid and good recovery. And, as each case formed the opposite end of an associated series, they will bear to be reflected upon, notwithstanding the sweeping condemnation some might feel disposed to inflict on every procedure that deviates from the groove of *ex cathedrâ* practice.

Titchfield-terrace, Regent's-park, Aug. 1871.

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A CASE OF PARACENTESIS THORACIS, IN WHICH A LARGE OPENING WAS SUCCESSFULLY EMPLOYED.

By Thomas Chaplin, M.D.

To what extent the treatment adopted in the subjoined case has been followed in England, I have no means of knowing; but I venture to hope that these notes may be thought of sufficient interest to merit publication in The Lancet.

A boy, twelve years of age, had a severe attack of pleurisy on the left side, which resulted in a copious effusion. The remedies employed with the view of promoting the absorption of the fluid having failed of the desired effect, and the symptoms becoming daily more urgent, it was resolved to perform paracentesis. Unfortunately, a delay of three weeks occurred, so that at the time of the operation the condition of the patient had become one of extreme danger. He was exceedingly weak and emaciated, had a flushed cheek, and nocturnal paroxysms of fever, but without much sweating. The respirations were upwards of forty in a minute, short, quick, and irregular; pulse 142. It appeared impossible that he could live more than twenty-four hours unless relieved. The left side of the chest was completely dull on percussion, and no respiratory sounds could be heard in it. The heart was beating on the right side.

The spot fixed upon for the puncture was the ninth intercostal space behind, nearly in a vertical line drawn from the inferior angle of the scapula. The skin having been drawn upwards, a fine exploring trocar with canula was introduced close to the upper margin of the tenth rib; and pus having begun to flow, the canula was withdrawn, and replaced by a larger instrument, such as is used for tapping hydrocele. More than forty ounces of thick, laudable pus were removed, when pain and coughing came on, and the canula was withdrawn, the opening being completely closed by the valvular portion of skin which now covered it. A strip of plaster was placed over the wound, and a bandage applied. Tympanitic resonance on percussion showed that air had entered the pleural cavity. The relief afforded was immediate and considerable. The respiration became less embarrassed, the patient slept, and was able to take nourishment, and the febrile paroxysms were less severe. But in the course of ten days the urgency of the symptoms had returned, and the operation was repeated, the opening this time being not valvular, and a canula being allowed to remain in it. It happened that no drainage tubes were obtainable, and a gum-elastic catheter, and other devices for securing the evacuation of the matter without further admission of air, did not answer well, and it soon became evident that the boy was falling back into a hopeless condition. Under these circumstances, it was determined to make a large opening, and treat the case as nearly as possible like one of ordinary abscess. Accordingly, an incision two and a quarter inches long externally, and somewhat more than one inch internally, was made through the wall of the chest into the pleural cavity, and union by adhesion prevented by stuffing the wound with twisted charpie. The free evacuation of the pus was now secured, the boy forcing it out by coughing as soon as the plug was removed, air, of course, rushing in to supply its place. A marked improvement was soon apparent. The pus was discharged in greatly diminished quantity, and gradually became thin and serous. The heart slowly passed back to its normal position; the fever disappeared; the patient became almost free from suffering, and gained strength and flesh. The wound was twice dilated with a tent of laminaria, and after some weeks an india-rubber drainage tube (a supply of which had meanwhile reached me) was placed in the opening. Four months after the first tapping the discharge had become of a purely serous character, and it was decided to remove the tube, which having been done, the wound immediately healed. That a large part of the pleural cavity remained unobliterated was shown by the extent to which the tubes could be passed in, and by the quantity of serous secretion daily discharged.

Eight months after the operation was performed the boy was quite well, with the exception of some shortness of breath when walking. There was slight flattening below the left clavicle. The circumference of the chest immediately below the axilla was 14½ inches on the right side and 14 inches on the left; at the inferior angle of the scapula, and just below the nipple, 14 inches on each side. There was slight dulness on percussion over all the left side of the thorax, except in the axillary region, where the dulness was very marked. Respiratory murmur was almost as audible as on the right side. The heart beat in its normal situation.

Some practical points of much importance are illustrated by this case. It shows—(1) that extreme emaciation, debility, embarrassment of the respiration, and hectic, in cases of empyema, are not necessarily signs of a hopeless condition, provided the lung is not involved and the constitution is sound; (2) that under certain circumstances a collection of pus in the pleural cavity may be *safely and effectually treated by a large opening;* (3) that a pleura which has taken on suppurative action, and been for many weeks exposed to the action of atmospheric air, may yet regain its healthy funtion.

It should be added that the patient was treated at his own home, a very miserable one, and that being a Jew, he received throughout only such food as was prepared in accordance with Jewish customs.

Having since treated another case in the same way with the best results, I am confirmed in the opinion that the method is both safe and effectual.

Jerusalem, 1871.

CASE OF AORTIC ANEURISM,

Treated in Melville Hospital, Chatham,

By Henry Jones Domville, R.N., M.D., C.B.,

Deputy Inspector-General.

(*Communicated by* The Director-General of the Medical Department of the Navy.)

D. A——, aged forty, a private in the Royal Marines, employed as a shoemaker, of sallow complexion, furrowed forehead, and iron-grey grizzly hair, beard, and moustache, was admitted on the 31st of December, 1871, with the following history:—For three years subject to winter cough, palpitation, and gnawing pain in the lower third of sternal region. From the 21st of January to the 10th of March, 1870, under treatment in hospital for pericarditis, with subsequent effusion, which subsided, and he then returned to duty. Subsequently dyspnœa slowly increased. About the middle of November a swelling appeared to the left of the sternum, and eight or nine days afterwards one on the right.

On admission there were two pulsating tumours of the size of half oranges, projecting two inches and a half from the chest, and connected by a ridge which rose to within three-quarters of an inch of the apices, which were just below a line drawn between the nipples, their bases lying on either border of the sternum, and combined having a circumference of fifteen inches. A bruit was detected on his first examination, but *never* afterwards. The radials and carotids were synchronous, and the pupils contracted equally. He had occasional shooting pains in the arms, no difficulty in deglutition, and but very slight dyspnœa. Could not sleep well on his back, and was generally obliged to lean forward. Heart sounds clear, and heard most distinctly in the median line, above and below the tumours. Circumference of chest over the tumours, thirty-eight inches; slight cuticular discoloration of the left.

After admission the left tumour slowly and steadily increased in size, fluctuation and dilatation becoming more distinct, and the right tumour becoming merged in it. The discoloration increased and decreased, but soon became permanent at the left apex, which was now evidently becoming thinner. Treatment by iron, sedatives (of which chloral and aconite proved the most useful by alleviating pain), and iodide of potassium, in large doses, pushed to iodism.

On the 23rd March, a fatal issue evidently approaching, fourteen inches of fine wire was passed through a long canula of one-sixteenth of an inch diameter into the left tumour from the left side, the wire being passed until resistance was experienced. The canula appeared to move freely in the sac, and only a few drops of black treacly blood escaped. This operation at first appeared to have a beneficial effect, the tumours decidedly becoming firmer and the impulse and discoloration less; but on the 28th March the bulging again increased, until, by the 9th April, it was almost nipple-like, the skin thin and black, and rupture imminent. The respiration on the left side also became feeble, and at times almost deficient. Nine fine needles, two and a half inches long, were then passed into the tumour at different points of the circumference, their points being directed so as to cross one another about an inch and a half below the prominent point. No pain was experienced in passing them, and no blood was lost. On the 11th of April blood began to ooze in drops, at first from the apex. On the 14th, six or eight ounces of blood escaped from it and the wire wound; and on the 16th a further free hæmorrhage. A closely fitting gutta-percha shield was then secured to the chest, with the idea of prolonging life by forming an external and possibly internal coagulum. This shield had a piece of glass let into the top, and a couple of gutta-percha tubes in order to inject if necessary. On the 20th free hæmorrhage recurred; and on the 23rd, when he was evidently sinking, there was a final profuse bleeding, which forced up the case, and he sank in ten minutes.

On post-mortem examination, a fungous, fibrinous coagulum was found extruding from the apex of the tumour, which had completely given way; and on opening the thorax an enormous fusiform dilatation of the aorta, extending from above the aortic valves, which were healthy, to an inch beyond the left subclavian, the aneurism at its greatest point of dilatation having a circumference of eight inches. About two inches from the valves in the anterior wall of the aorta was a large orifice of the size of a half-crown, by which communication was kept up with a sacculated aneurism, of the size of a large orange, lying in the anterior mediastinum between the sternum and the heart, lined with thick, partly organised layers of fibrine. In the sternum, implicating chiefly the left side, was a circular eroded opening, having rough edges, of the size of a florin; and externally, forming the visible tumour, a small sac, of the size of an egg, with organised lining membrane, surrounded by dark fibrinous coagulum, of from three-quarters of an inch to one inch in thickness. The sac was ruptured, there being an opening of the size of a shilling, by which the fatal hæmorrhage had taken place. In the coagulum, embedded in its lower border, was found the wire, coiled up irregularly in the form of a figure of 8. The wire and needles were only partly oxidised. The lungs were healthy, with the exception of a portion of the left lower lobe, which was hepatised. The pericardium was loaded with fat, and adherent throughout to the heart; and there was some serous effusion into the left pleural cavity.

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CASE OF EXTRA-UTERINE FŒTATION AND SUPERFŒTATION.

By Frank Aegles, L.R.C.P.E., L.M., M.R.C.S.

On September the 3rd, 1870, I was called to see Mrs. S——, whom I found suffering from constant nausea. I prescribed suitable remedies and succeeded to an extent in stopping it. The catamenia were irregular, coming on for one or two days, and then stopping for a week, and again returning. This went on to the end of December, when they stopped. In the month of January I informed her that she was pregnant, and was able to detect the child by abdominal examination. She seemed to progress favorably until April the 10th, when I was sent for in consequence of her stating that she felt the child was dead. On stethoscopic examination, combined with other symptoms, I found she was correct. Three days after this I was hurriedly sent for, and on my arrival the nurse showed me something that had come away, and which proved to be an ovum of about two months. This surprised me not a little, and I kept the specimen. On examining externally I could still detect the dead child, and by passing my finger into the vagina could feel nothing through the os uteri, which was but slightly dilated, and would not readily admit the finger. External to the os, on the right side, the child could be distinctly felt. The abdomen appeared to be of a natural shape, not larger on one side than on the other. On percussion there was dulness about the navel, but it was tympanitic on either side. The abdomen gradually increased in size until about the end of June, when it seemed to be very much distended. Her general health was bad; sickness and fainting, with bilious diarrhœa, in which there was no solid matter, frequently occurred. Not being clear as to the exact condition of the uterus, whether there was a fœtus or not within, I dilated the os with a sponge-tent, the string of which broke, and gave some trouble in its removal. However, it was clear the uterus was empty. As her symptoms indicated peritonic irritation, and she was becoming worse, I asked Dr. Hicks to see the case, and he was of opinion that it was one of extra-uterine fœtation.

On Sunday, July 9th, I saw her about 11 A.M., and she appeared to be more comfortable than usual. About 3 P.M. on the same day I was sent for, and found her retching a good deal, and bringing away a greenish fluid. She complained to me of having felt an acute pain, as if something had burst. Several minor pains followed. About 7 P.M. I again saw her. She was unable to retain anything upon her stomach, and I could see she was fast sinking. Death took place at 1 A.M. I was exceedingly anxious to have a post-mortem, examination, which unfortunately could not be performed until three days after death. At this I was assisted by my friend Dr. Hawkes. On opening the abdomen, the child (a boy) immediately came into view. It was lying obliquely from right to left; its head was pressed forward on the chest; the occiput was turned towards the liver; the hands were folded under the chin; the back was turned forwards, and the legs were drawn upwards. The thighs of the child pressed the womb very much downwards and backwards towards the rectum, in the shape of a shield; the bladder was small, and pushed a good deal forward; the intestines were chiefly lying high on the left side, and quite agglutinated, a cyst having formed around the fœtus. The liver was adherent to the abdominal muscles, and large flakes of hair were found closely attached to its under surface. The left ovary was entire, but very large. There was no trace of the right, although the Fallopian tube on that side was much dilated, readily admitting two fingers. This led me to believe it was a right tubo-ovarian pregnancy, the ovary and end of Fallopian tube being the original envelope. Decomposition was so much advanced that, on removing the child, the attachment of the placenta could not be found. The child was large, and appeared to be about seven months. It was very perfect in every particular, except the legs and feet, which were short and rickety. On examining the womb it was found to be rather large, and very adherent to the surrounding parts. After minutely inspecting it, we could find no opening into it except through the right Fallopian tube.

The peculiar feature of this case is the length of time that elapsed between the death of the child and that of the mother, coupled with the intra-uterine ovum.

Wanstead, August, 1871.

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REPORT OF A CASE OF

REMOVAL OF A PORTION OF BONE FROM THE RECTAL FOSSA.

By James Thompson, M.D., M.R.C.P., M.R.C.S.

Mr. M——, aged seventy—in early life an active man, walking many miles daily,—twenty years since began to suffer from pains in the back and pelvis, which obliged him to give up horse exercise, and he could walk only short distances. He suffered in this way for five years before he consulted his surgeon, who, after an examination, told him there was no local cause for his suffering, and prescribed leeches and aperients, with benefit for a time. One of his friends then told him that it must be piles he suffered from, and recommended him to take milk of sulphur, as "it had cured *him*." He took some with relief, and since then for about fourteen years has taken some almost every day.

In November last he came under my care. He was then a stout, healthy-looking man, of full habit of body, and complained of tympanites, nausea, tenderness over the abdomen, scanty high-colored urine, and slight fever; bowels costive. He said he had piles, but would not permit any examination of them, as he did not think his present symptoms were caused by them. Diaphoretics and diuretics were prescribed, and in a few days he declared himself convalescent. A few days after I found him in the same state, but with gout in the right great toe. Alkalies and a more generous diet in a few days relieved the gout, but the general state remained much the same.

I felt sure the so-called piles were the cause of the disturbance. I insisted on a consultation, and arranged to see him with Dr. Slack, of this town. We found an almost raw surface, extending two inches round the anus, and a zone of erysipelatous blush four inches in breadth. On the left side, about an inch from the anus, there was a small opening, through which appeared a small black point. This was seized and drawn out by slightly enlarging the orifice, and proved to be a piece of bone three-quarters of an inch square. No piles were found. A probe passed through the external opening entered the rectum a short distance above the sphincter, and a considerable cavity remained where the bone had rested. The following day two other small pieces of bone were removed. The sore was dressed with a carbolic-acid lotion, and when the inflammatory state had passed away the now fistula was laid open, and in a few days the wound healed up, and his general health improved greatly. He declared that he now felt more comfortable than he had done for twenty years. Since that time he has regained much of his former activity, and is now in excellent health.

The pieces of bone were examined, and were possibly portions of the scapula of a rabbit. The patient thinks "it has been in him all these years"; if so, it must have lodged in some portion of the intestine, ulcerated its way out, and gradually reached the pelvic opening. There is no history of any injury to the spine or sacrum.

The quantity of sulphur taken was enormous—half a tea-spoonful almost every day. He states that it gave him temporary relief. It may have acted by relieving the rectum, and so removing pressure of its walls against the bone, and possibly the more sensitive parts of the walls of the pelvic cavity.

Leamington, June, 1871.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

ROYAL FREE HOSPITAL.

A CASE OF CHOLERINE DIFFICULT TO DISTINGUISH FROM ASIATIC CHOLERA.

(Under the care of DR. RICKARDS.)

THE history of this patient, and the symptoms he presented on admission, induced Dr. Rickards, at first, to consider his case one of Asiatic cholera in the stage of commencing reaction. But as, from the account given of his stools, it did not appear that they had ever presented the characteristic rice-water appearance, and those observed in the hospital did not answer to that description, and all the other symptoms were found to be compatible with the English form of bowel complaint, Dr. Rickards changed his view of the case, and came to regard it as one of those variously designated as cholera morbus, English cholera, choleraic diarrhœa, and acute intestinal catarrh. The cramps, however, were of exceptional severity.

Dr Rickards observed that if the water used for drinking purposes on board a ship be only so slightly tainted with cholera germs as to produce a specific effect on a delicate frame, it may yet, in another person, induce a relaxed state of the bowels similar to that noticed in the case in question, and, at the end of the voyage, when the patient becomes subject to land influences and a change of diet, develop an attack of genuine cholera. Even a man who has escaped every apparent effect of the poison may carry away, on leaving the vessel, germs which will produce the disease after he has reached the shore. These considerations, combined with the fact that attacks of choleraic diarrhœa occurring during a cholera epidemic are regarded as being intimately associated with the Asiatic disease, made it difficult to distinguish at first sight the exact nature of the patient's affection.

He was a seaman thirty-five years of age, and had gone to bed the night before admission to all appearance well. In about half an hour he was seized with violent purging and vomiting; he continued to pass watery stools without intermission until about three o'clock on the following morning. The vomited matters were also watery. His voice had become so weak that his cries for help remained unheard, and he suffered such severe cramps in the legs that he was quite unable to leave his bed. Between three and four o'clock the landlord of the house, on going into his room, found him cold, stiff with cramps, and in a state of collapse. The chamber vessel was full of watery evacuations of a light-drab color, and the floor and bedding were soaked with liquid evacuations and ejecta. He was immediately brought to the hospital.

It appeared that while the patient was staying in February last at Colombo, where cholera was raging, a vessel sailing from the Persian Gulf, of which the captain and two seaman had died rapidly of cholera, put into port. The remainder of the crew immediately took their discharge, and he was one of a party of men who were engaged to work the ship on to London. He felt out of sorts when he left Colombo, but was quite free from diarrhœa. The remainder of the crew were in good health, and continued well to the end of the voyage. After leaving Colombo his health improved. In the neighborhood of the Persian Gulf they took in water which the whole of the crew used for drinking purposes during the remainder of the voyage. As the vessel neared the Cape he was taken with looseness of the bowels, accompanied by griping abdominal pains, and had to keep his bed for a fortnight. He continued, on resuming work, to have looseness of the bowels until he arrived at the London Docks, passing sometimes four motions a day. At the time of landing he only passed one motion daily, and he lived steadily, eating plain meals with vegetables and a pint of beer daily, until, four days after landing, he was seized as already described.

On admission he was exceedingly prostrate, but reaction appeared to have commenced. The pulse and heart sounds were 140, and feeble. The skin was neither livid nor icy cold, except at the hands and feet; the face was of an earthy tint; the hands were wrinkled and shrivelled, and cold and damp; the skin over the calves of the legs was limp and loose. Frequent, severe, spasmodic cramps could be both felt and seen in the muscles of the lower jaw, neck, chest, arms, abdomen, and legs. The deltoids and sterno-mastoids were observed to frequently rise up into rigid knotty lumps, then to relax, and then quiver; the muscles of the calves were rigid and firm. The tongue was wrinkled at the edges, and whitish in the centre; the voice weak and thick. There were still griping abdominal pains.

On the following day the patient had passed a restless night; the vomiting, diarrhœa, and cramps had prevented sleep. The pulse was 120, and the temperature 100°. The stools were frequent, scanty, liquid, and of a light-drab color; they did not present a rice-water appearance. The urine was passed in teaspoonful quantities; the voice of cholera was still marked; there was also some deafness. The patient was sensible, but excessively prostrate, and indifferent as to his state. On the third day there was some improvement. The cramps were less severe, but could still be felt and seen in the muscles of the neck and the deltoids. The purging and vomiting had ceased; the flow of urine had increased; it was neutral in reaction and free from albumen. The patient took a little milk and arrowroot. On the fourth day the cramps were only felt occasionally in the feet and neck. A natural stool was passed. On the fifth day the patient's condition presented nothing more than weakness; the cramps had ceased. He took some solid food. The urine contained a trace of albumen. On the sixth he sat up. He presented symptoms of simple catarrh, with sore throat. On the eighth the recovery was complete.

The treatment consisted mainly in the administration of ice and acetate of lead, the application of local warmth, and, above all, comprised the attention of two good nurses, one of whom was constantly by the bedside to assist the patient, and to administer two teaspoonfuls of brandy in a teacupful of milk, at first every hour, then every two hours, and then every three hours, until other kinds of food could be borne.

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ST. MARY'S HOSPITAL.

ACUTE PERIOSTITIS OF THE FEMUR; AMPUTATION.

(Under the care of Mr. HAYNES WALTON.)

THE following is a good instance of the immediate advantage which frequently follows the removal of a source of profuse suppuration, although it involve an operation of considerable magnitude. Mr. Walton thought that the patient's interests would be better served by amputating comparatively low, notwithstanding that his incisions were carried through suppurating tissues; and he was justified in this step by the stump ultimately becoming as firm and healthy as if it had consisted, from the first, of perfectly healthy tissues. The slight exfoliation of bone was due to the softened medullary membrane having been to a small extent detached by the saw. Mr. Walton attaches much importance to the application of a splint to the stump in these cases.

A. C——, a tall, thin, pale lad of sixteen, was admitted with great swelling of nearly the whole extent of the right thigh, especially of the lower third. The skin was tense and somewhat reddened, and pitted on pressure. The slightest touch gave exquisite pain. The pulse was 115; the tongue furred; and the bowels confined.

He stated that a fortnight previously his thigh had become painful after his return from work as a gasfitter, but he could assign no cause for this condition. On the following day he found himself unable to bend the limb. About four days later the thigh began to swell, and from that time it gradually increased in size. He suffered violent throbbing pains, and could get no rest at night.

Ten leeches were applied to the inner aspect of the thigh a little above the knee. These were followed by poultices, and the patient was ordered a perchloride of iron mixture, a nutritious diet, and four ounces of brandy daily. These measures were followed by a great abatement in the pain, and improvement in his general condition. In about a week's time, however, fluctuation having been detected at the inner aspect of the thigh, a free opening was made, and about seven ounces of pus were evacuated. At the bottom of the abscess cavity the femur was found to be entirely denuded of periosteum, and roughened at a spot about two inches above the condyle. The liberation of the pus brought great relief, but a considerable discharge was maintained, and in a few days the patient began to lose strength and to become hectic to an extent that endangered his life. The limb was therefore amputated at the upper part of the middle third. Some abscesses were cut through, and the flaps consisted, to all appearance, of softened and almost disintegrated tissue. The stump was dressed with dry lint, and a splint was applied.

The whole of the structures of the severed portion of the thigh were found to be bathed in pus; the periosteum was stripped from the bone, which was softened, and contained pus in the medullary cavity; the medullary membrane was destroyed; the knee-joint also contained pus.

On the following day it was found that he had had a little sleep; he had had no pain, and had not been sick. He was ordered a liberal diet, with brandy and port wine, and tonic medicines. The stump was dressed for the first time on the third day. There was a good deal of discharge, and instructions were given for poultices to be frequently renewed. The recovery was steady and uninterrupted. About five weeks after the operation a small sequestrum came away, the greater portion of the wound had healed, and in about a week more it had completely cicatrised.

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ST. GEORGE'S HOSPITAL.

OPHTHALMIC DEPARTMENT.

(Under the care of Mr. BRUDENELL CARTER.)

THE ophthalmic operations at St. George's on Wednesday, the 13th Sept., were eleven in number, and comprised seven cases of extraction of cataract, one of strabismus, one of iridectomy for adhesions, one of trichiasis, and one of displacement of an eyeball downwards in order to increase the usefulness of an artificial pupil. The patient in this case was a young man whose corneæ had been rendered opaque by inflammation in their central and lower portions, but were moderately clear above. An iridectomy upwards had been made in each eye, but the resulting pupils were so much covered by the upper lid as to be of little use. Mr. Carter therefore divided three of the recti muscles—the internal, external, and superior,—so that each cornea was pulled downwards by its inferior rectus, the eyeball was rendered more prominent, and the artificial pupil was brought opposite the palpebral fissure. This had been done on the left side a fortnight previously, and had been followed by greatly increased usefulness of the eye, with little or no diminution of its powers of movement. Mr. Carter said that he expected the iridectomy to have the effect of greatly promoting the disappearance of the corneal haze, and that the patient's sight would, eventually, probably be almost entirely restored.

The cases of cataract presented no peculiarities, except that in three of them the lenses had been previously punctured with a needle, in order to hasten the degeneration of the cortical substance. These were all instances of the very tardy development of opacity, in which the patients were already unable to work, but in which the cataracts would not of themselves have become ready for extraction for a considerable time. In one patient the needle-puncture had been made fourteen days, in another seven, and in the third only twenty-four hours, before the operation. In the first of these there was some escape of vitreous humour after the exit of the lens; but the other six presented no abnormality. The operations were all by von Graefe's method of linear section.

The patient with trichiasis was an Irishwoman, whose upper tarsal margins had become incurved along their whole length from contraction after granular lids. Three months previously Mr. Carter had excised a linear strip from each tarsal cartilage, after the manner suggested by Dr. McCraith of Smyrna; and this operation was for a time completely successful. After about two months, however, fresh contraction again dragged down to the eyeball the cilia of the external half of each upper lid; and Mr. Carter now performed a modification of Jaksch's operation, by splitting the cartilage, and transplanting the superficial layer, with the cilia, higher up on the lid. In this way he hoped to arrive at a permanently successful result.

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KING'S COLLEGE HOSPITAL.

OPERATIONS BY MR. HENRY SMITH.

Polypus of the Rectum.—The subject of this affection was a middle-aged woman. The growth was innocent in character and of a bifurcating form. It was severed by means of scissors after the application of a clamp to the pedicle, to which was applied the actual cautery. A fissure which existed at the root of the polypus was next incised with a blunt-pointed bistoury. Mr. Henry Smith laid stress on the importance of examining carefully for fissure in all cases of polypus of the rectum. He said that it is a much more usual complication than is generally supposed, and not unfrequently is the principal source of the patient's distress.

Necrosis of the Tibia.—The patient was a strumous-looking lad of thirteen. Several months previously he had been admitted with a recent anchylosis of the knee-joint, the result of acute inflammation, and with necrosis of the tibia from the head to within an inch of the ankle-joint. Mr. Smith had been rather urged to amputate the limb, but as it appeared, from the fact of the joint-disease having arisen subsequently to disease of the tibia, that the process of necrosis must be complete, and the lad's general health was fairly good, it was resolved to make an effort to save the limb. Nearly the whole of the tibia was removed in the form of a sequestrum, and the patient was sent into the country for change of air. After the lapse of several months he returned, with a very substantial and thoroughly efficient deposit of new bone; there remained, however, a few fragments of diseased tissue to be removed, and the operation we witnessed was the second he had undergone for that purpose.

Stricture of the Urethra treated by Internal Incision.—The stricture was situated about two inches and three-quarters from the orifice of the urethra, and had stoutly resisted the passage of any but catheters of the smallest size. The instrument employed was Sir William Fergusson's urethrotome. After the operation a No. 6 catheter was readily passed, and was tied in the bladder. Mr. Smith observed that strictures situated within the spongy portion of the urethra are usually of a very undilatable nature, and that the present case had shown itself to be singularly well adapted to treatment by incision. He expressed a strong objection to the use of the knife for internal incision of the more remote portion of the urethra.

Stricture of the Urethra treated by Perineal Section.—In this case also the stricture was situated in the spongy part of the urethra, but the patient's perineum was furrowed by fistulous sinuses, which had resulted from rupture of the membranous portion. A fine grooved staff was introduced into the bladder, and the knife, having been made to hit the groove, was carried forwards so as to divide the obstruction. The patient was unfortunately the victim of severe syphilitic disease. He had lost a portion of the palate, the nasal bones, and part of the penis. His body bore the cicatrices of numerous tertiary ulcerations.

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Provincial Hospital Reports.

LEEDS GENERAL INFIRMARY.

CASES OF OVARIOTOMY.

(Under the care of Mr. Jessop.)

Case 1. (From notes by Mr. F. Wright.)—Emma C——, only thirteen years of age. About twelve months before admission a swelling, which at the time was supposed to have been caused by a fall upon some stones, was noticed in the left iliac region. For nine months it remained almost stationary; but her health failed steadily. During the three months immediately preceding admission her belly underwent a rapid increase. The menstrual flow had not been established. When admitted, the girl was much emaciated, and suffered night and day from intense pain. The abdomen was occupied by a tumour, ovoid in shape, which sprang apparently from beneath the pubes, and, inclining towards the right side, extended to the under surface of the liver, from which, however, it was separated by a line of resonance. The upper half of the tumour had a solid feel, whilst the inferior half yielded a sense of fluctuation. These two portions were explored by a fine (No. 1) trocar. Thick viscid fluid flowed from the lower one.

On the abdomen being opened, the peritoneum was found to be everywhere intensely injected. A few adhesions existed in front, but were readily separated by the hand. During the operation, which was performed under chloroform, the girl appeared to be much depressed. She continued to sink, and died about twenty minutes after her removal to bed.

The tumour consisted of one large cyst, with several small ones attached, and of a mass of whitish cheesy matter, mixed with numerous thin, colorless, curly hairs, which, on microscopic examination, presented the appearance of encephaloid.

At the autopsy cancerous deposits were found in the liver, right supra-renal capsule, and mesenteric glands. A clot of blood, weighing 6¼ oz., was removed from the right side of the abdomen; but, after most diligent search, its source was not discovered.

CASE 2. (From notes by Mr. Edward Hey).—Harriet S——, aged fifty. She stated on admission that she had always been healthy; that she had had five children, the youngest of whom was eight years old, and that she had menstruated regularly up to that time. It is three years and a half since the disease first made its appearance. About thirteen months previously, seventeen pints and a half of fluid were removed by tapping; and, nine months later, eighteen pints were drawn off. On admission, four months after the second tapping, she had become larger than ever.

The tumour was found to consist mainly of one large cyst, containing twenty-eight pints of fluid. The pelvis was filled with a mass composed of solid matter and a large number of small cysts, weighing together 2 lb. 6 oz. The pedicle, which was tolerably long, and about two and a half inches broad, was treated by torsion after the manner described by Professor George H. B. Macleod, of Glasgow, in THE LANCET for May, 1871. After the twisting was completed, a very small vessel, observed to be bleeding in the stump, was secured by a silk ligature, the ends of which were cut short.

The after-progress of the case was in every respect satisfactory. The patient was discharged cured from the hospital on the twenty-seventh day.

CASE 3. (From notes by Mr. Edward Hey).—Jane S——, aged thirty-two, the mother of a family, stated that until four months ago her health had been uninterruptedly good. She then observed an increase in the size of her body, and very shortly afterwards the increase began to proceed rapidly. She was relieved by tapping of thirty-two pints of fluid; but in the brief period of thirteen days the distension had returned almost to its former extent, and she was admitted thin and pale, suffering great pain, and, according to her account, losing flesh rapidly. On examination there appeared to exist both ovarian disease and ascites.

On operating, there was found to be a large amount of ascitic fluid, as well as a large ovarian cyst containing twenty-two pints of fluid, and a solid mass weighing 2 lb. 3 oz. The tumour was attached on the right side deeply in the pelvis by an unusually short and broad pedicle. Notwithstanding this apparently unfavorable condition, Professor Macleod's new mode of dealing with the pedicle by twisting was adopted, with the effect of completely arresting all bleeding. The peritoneum was observed to be here and there thickened, and to be studded with numerous hard nodules, varying in size from that of a cherry-stone downwards.

The patient's recovery was rapid. On the ninth day she sat up for an hour, and was removed from a private into a general ward. On the twenty-first day a small abscess burst in the line of cicatrix, immediately below the umbilicus. From the opening thus formed several ounces of ascitic fluid escaped, and a similar discharge was maintained during the rest of her stay in the hospital, which terminated on the thirty-seventh day. When she returned to her home the abdomen was hard and a little distended; nodules could be distinctly felt all over the front, and appeared to have undergone enlargement. She looked emaciated and pale. About six weeks after she left the hospital her death was reported.

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BRADFORD INFIRMARY.

SHIFTING AND RECURRING PARTIAL HEMIPLEGIA IN A PATIENT SUFFERING FROM BRIGHT'S DISEASE.

(Under the care of Dr. NICOL.)

THE following remarkable symptoms are supposed by Dr. Nicol, and by his colleague Dr. Bourne, to have been due to a shifting œdema about the pons Varolii. We hope to report the patient's further progress.

J. W——, aged thirty, suffering from Bright's disease, was admitted with extensive anasarca. His urine yielded more than half its bulk of albumen. After a course of hot-air baths, purgatives, and ferruginous tonics, the anasarca almost entirely disappeared, and the patient was enabled to get about. While in this condition, fifteen days after admission, he had, at midnight, an epileptiform seizure, which terminated in left facial and arm paralysis. He could not speak, but seemed to understand what was said to him. Mustard poultices were applied to the calves, and a catheter had to be passed.

On the following morning he was recovering slowly, and appeared to recollect all that had happened during the night. He spoke with difficulty. He was observed to be unable to close his eyes by a voluntary effort, although the usual winking took place. There were symptoms of lung congestion, for which poultices were applied. In the right axilla the temperature was 97·5°; in the left, 97°. In the evening the patient's general condition had much improved. On the right side the temperature was 97·4°; on the left, 99°. At ten o'clock in the evening another seizure occurred. This time the face was paralysed on the right side; the eyes were drawn to the left; the power of speech was lost, he seemed unconscious, and yawned frequently. He passed urine in the usual quantity.

By ten o'clock on the following morning he was better, and pronounced simple words with difficulty. The face was not drawn, but the eyes were closed only with an effort. A grain of elaterium with four grains of calomel were placed on the tongue, and an enema of turpentine and castor oil was injected into the bowel. At ten in the evening a copious stool was passed, and in a quarter of an hour more the power of speech returned. It was found that though in the morning he had been unable to swallow, and could not protrude the tongue beyond the teeth, he had taken his dinner well. The bowels were still further freely opened.

The next day, the fourth after the first seizure, urine was passed in usual quantities, and he seemed to be quite well. He was ordered five grains of tannin three times a day, with milk and sherry. He remembered those who had been present during his last attack (several persons being present), and affirmed that he had been conscious of all that passed.

A third seizure followed at half-past one o'clock in the afternoon, after he had partaken fairly of dinner, and ended in right facial and arm paralysis, and partial loss of speech. Extensive dry cupping was practised for an hour; then an enema similar to the last was injected; a copious stool followed in rather more than an hour. The paralytic symptoms rapidly disappeared, and on the same day he was able to sit up in a chair.

On the following (fifth) day he was sitting up dressed; he spoke well, but the right arm was weak. He was ordered four ounces of sherry daily, and continued to take the tannin.

On the sixth day the urine was found to be acid, of a specific gravity of 1010, and to contain pus-corpuscles to faint milkiness. It yielded rather less than one-half its bulk of albumen. Three days later the patient continued well, and the right arm was steadily gaining power.

Editorial.

TREATMENT OF INFANTILE DIARRHŒA.

In commenting upon the treatment of infantile diarrhœa we would begin by observing, for the encouragement of practitioners, that this complaint often strikingly repays an attentive and discriminating treatment. It is true that in unhealthy houses in the months of July and August, and especially in the case of bottle-fed children, it is a difficult matter to control this disease. Still much can be done, and when the sanitary legislation that is promised shall have been granted, when—the great questions of sectarian and political strife being settled—our statesmen shall have time to realise their responsibility in regard to the premature and preventable mortality of the people, and vie with each other in securing a plentiful supply of pure air and water to the poorest house in the poorest court, the treatment of this most fatal disease will be one of the most hopeful duties of the medical man, though even then it will require judgment and patience. It is of course the duty of the medical man now to explain to the parent of the child the part played in generating or keeping up this disease by all accumulations of dirt, especially of excremental dirt, in or about houses or drains. It is impossible, in studying the graver and fatal forms of infantile diarrhœa, not to be struck with their likeness to typhoid, both in regard to the insanitary conditions which enter into their causation and the intestinal lesions by which they are accompanied. A very important matter in the treatment of a child whose life is imperilled by severe diarrhœa in summer months is to place it in the cooler or more airy parts of the house. Great heat seems to operate, not only by liberating all sorts of unhealthy emanations from organic refuse, but also by paralysing or depressing certain parts of the system—perhaps the sympathetic or vaso-motor portions of the nervous system. In very bad and persistent cases the great hope of saving life is in removing the child to a higher, cooler, and purer atmosphere. "Physicians of experience," says Dr. Smith, of New York, "all agree in the choice of elevated localities containing a sparse population, and remote from the sea shore." Still, in the great majority of cases, our hope must be in improving the hygienic condition of the particular house in which it is the lot of our patient to live, and in extemporising as we best may a cooler atmosphere.

The question of food meets us at the very threshold. Bad forms of diarrhœa are mostly met with in children under eighteen months of age—we might say under twelve months,—and in a large proportion of cases the child is fed artificially. It is curious to see how, even in homes where every care is taken in securing and preparing the infant's food, the cow's milk, which hitherto may have agreed well with it, will all of a sudden act upon the child as though it contained elaterium or tartar emetic. It is necessary in these circumstances to dilute the milk with water or barley-water, and, in bad cases, to withhold all milk rigidly for a few hours. If the child is very young, and has only been recently weaned—and, by the way, children should not, as a rule, be weaned in the hot months of the year,—a wet nurse may be the saving of it. If this is contra-indicated, and the milk acts as an irritant, then barley-water, rice-water, or arrowroot prepared with water, or even cold water, should be given, not in too large quantities, but yet frequently and freely. The thirst generated in this disease is terrible, and expresses a great physiological want. Bland fluids for the time being are food, and the little infant drinks as though it had never drunk before. It will often happen that a few hours' rest from milk, with other treatment, will allay all vomiting and permit of other forms of food—such as a few spoonfuls of chicken broth. Beef-tea seems to purge. And children will live for a day or two very well on barley-water, arrowroot-water, and chicken broth. Where the evacuations are very profuse and rapid, and the prostration great, a few drops of brandy in sweetened water from time to time will be of great service. At the first visit of a medical man to a severe case of infantile diarrhœa he ought to examine the mouth to ascertain the stage of dentition. Possibly the evolution of the teeth may have nothing to do with the attack; but, especially in cases where there is acute vomiting, it will often be found that the gum is swollen or inflamed over a tooth, and the gum lancet is valuable and indispensable instrument in such circumstances.

It is no part of our intention to go into great detail in regard to the use of medicines in such cases: what we wish is rather to make a few general observations as to the value of particular medicines or classes of medicine. Detail is the more impracticable as the particulars of individual cases vary so much according to the age and constitution of the patient and the history of the attack. We may have to deal with a sudden attack of vomiting and purging that shall threaten death by prostration in twelve or twenty-four hours; or with a simple diarrhœa, thinning and weakening the child, but not visibly threatening its existence; or a diarrhœa persistent and profuse, extending over days or weeks, with corresponding vomiting, a hot and dry skin, great thirst, fretfulness, and perhaps twitchings or actual convulsions. One of the urgent questions that arise in the mind of the practitioner when he first sees these cases is that of the administration of a laxative, with the view of evacuating any irritating substances or secretions. As a rule, we consider this practice more honored in the breach than in the observance, notwithstanding great authorities. Of course there will be exceptional cases where the need for this treatment will be obvious. But generally it will be found that spontaneous diarrhœa has been going on for days before the practitioner has been consulted; and often it will further turn out that a dose of castor oil or other purgative has been given, with the effect of making matters more serious. As a rule, we repeat, we are against the use of either castor oil or calomel. As to medicines for restraining diarrhœa, the choice of the practitioner will, in the first instance, lie mainly between the old-fashioned chalk mixture and a drop or two of dilute sulphuric acid. In very young children, and where the motions are very green, the chalk mixture will often act most satisfactorily; but sometimes it will fail to do any good, and seem to aggravate the sickness; and the acid treatment will be likely to succeed better. There are two features of cases, it seems to us, which should lead us at once to prefer the acid treatment—irritability of the stomach and profuse perspiration. Cases of late dentition, with large head and other signs of a rachitic constitution, generally do best under the sulphuric acid. On the whole, for children who have arrived at the teething period, and in very hot weather, we think the acid treatment the better of the two. Where the acid alone, suitably sweetened and diluted, fails, it will often succeed entirely with the addition of a slight quanuity of tincture of opium. There can be no doubt of the value of this remedy for controlling both evacution and the irritability which accompanies it; but it requires to be given cautiously, especially if the hydrocephaloid state threatens; a part of a drop or a minim, frequently repeated, will often suffice for all good purposes, repeated as need may dictate. Sometimes more decided astringents are wanted. The tincture of krameria, catechu, or the acetate of lead, are among the best. Small doses of the latter medicine, such as a twelfth, an eighth, or a quarter of a grain, frequently repeated, with or without opium, will sometimes control cases that present all the features of bad entero-colitis. When once the evacuations are controlled, it is a great thing to abstain from doing too much, and to give the little body time to recover its lost functions and its lost weight.

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THE CONSTRUCTION OF HOSPITALS.

Dr. Massy, the Head of the Sanitary Branch of the War Office, in an excellent and very practical paper, has recently dwelt upon the defects in existing hospitals. The following illustrations, taken from his paper, will serve to indicate in what several of these defects consist:

"Wards are often met of the following or a nearly similar description:—Room not far from square, windows in one—the external wall; two opposite walls blank, with the exception of a fireplace possibly in both; and the fourth, opposite the external wall, having openings in upper portion communicating with a common passage of the hospital, also a door leading into the passage. What must be the state of ventilation in such a ward containing a number of patients? In summer, the windows during the day are more or less open, but the air may be nearly still; whatever motion it has may not be pressing from the direction of the windows, and the atmosphere outside may be warmer, or differ little in temperature from that within. Diffusion, which will be the chief force in operation, will not sufficiently change the air in such a ward. But suppose a current of air is pressing, however feebly, from the passage, the result may be a common ward atmosphere. In winter, when fires are burning, what will be the condition? Were a sufficiency of the windows open, the heat, by creating a difference of density of the air within from that outside, would produce a current which would sufficiently change the air in the ward; but the windows are only occasionally open during the day in winter, and never at night, and the chief supply would consequently be derived from the passage common to the entire hospital, brought possibly from any or every ward in the building.

"Another faulty construction that is frequently seen, is a long room with windows at both ends only. Here, when the windows are open, the emanations from the patients to windward must pass over those to leeward; and, when the windows are shut, the ventilation cannot be otherwise than bad, if, with the exception of the chimney, there is no direct connexion with the open air. The Anglo-American Ambulance in the Caserne d'Asfeld at Sedan was an instance of this form of construction."

Great attention has been bestowed of late years upon the problem of hospital construction. The result is well known—namely, that the pavilion plan is considered to be by far the best, with inlet and outlet apertures in addition to opposite windows, and with means for warming the incoming air to the requisite extent. The Surgeon-General of the United States' army was able to boast of their large pavilion hospitals, that never before, in the history of the world, had the mortality in military hospitals been so small, and never had such establishments so completely escaped from diseases generated within their walls.

We have already said that there are no available statistics of such a character as to show distinctly that small hospitals possess that preponderance of advantages over large ones that Sir James Simpson endeavored to prove: nor have we any data as to the comparative healthiness of different classes of buildings. We are therefore compelled to have recourse to some other method for determining the relative value of different forms of hospital construction. Dr. De Chaumont, acting under instructions from the War Office, has been making a number of experiments that have a very distinct bearing on this subject. Amongst other objects, he had to determine the relative effects of the different amounts of cubic space allotted to the occupants of a ward or room on the purity of the contained atmosphere, as well as the relative value of different forms of construction.

In occupied rooms containing aërial impurities derivable alone from the emanations of the occupants, it is found that the measure of the carbonic acid indicates with sufficient certainty the amount of organic matter present. Dr. Parkes and Dr. De Chaumont have shown that, taking ·04 per cent. as the initial amount of carbonic acid in the air, the addition of ·02 per cent. is not appreciable to the senses, but that from ·08 to 1 total Co_2 is—the latter very decidedly so.

Anyone referring to the tabular results of Dr. De Chaumont's experiments published in Dr. Massy's paper must be at once struck with the contrast exhibited, as regards the carbonic acid impurity and movement of air, between the Herbert and Hilsea Hospitals (on the pavilion plan, with a complete system of ventilation) and the Portsmouth Garrison Hospital, where the windows are either at opposite ends of a ward, or at one end and on one side of the ward. The pavilion buildings, Dr. De Chaumont tells us, were twice as well ventilated as structures erected on other plans. At Hilsea, with the windows open, the respiratory impurity was only ·048 of carbonic acid per 10,000 volumes, or 6½ per cent. excess over the outer air; and all the air was changed no less than nine times in one hour—a result which it would be hopeless to expect in a building on the plan of the Portsmouth Hospital. But it might be contended that, as emanations of an infectious character from patients in a ward do not diffuse themselves uniformly through space, the degree of carbonic acid impurity cannot be received as a fair measure of the organic impurity present from that cause. There is, no doubt, much force in this objection; and it is unfortunate that we are not in a position at present to demonstrate these organic impurities with the same accuracy that we can carbonic acid. But, as Dr. Massy remarks, putting aside the effect of free ventilation on the oxidation of organic matter, it is unquestionable that the freer the change of air in a ward by renewal from a pure source, the less will be the aërial impurity present. In other words, a stagnant state of the air favors the accumulation, decomposition, and subsidence of organic matter; while a free movement of it does exactly the reverse. The wounded and the operation cases that accompanied Sherman's army in its march from Atlanta to Savannah were treated in the open air, and they progressed most favorably; and the excellent results obtained recently in Paris in the temporary hospital at St. Cloud, under Baron Mundy, form a striking contrast to those obtained during the siege, when the wounded were located in badly ventilated permanent buildings, however small.

But what we wish more especially to indicate is this: that almost all the large hospitals in which structural defects exist are capable of being much improved and better adapted to their requirements. It would lead us into endless details to enter upon the various plans by which this might be done; but we think Dr. Massy is right in saying that it is essential to recognise the principle on which it should be attempted—viz., to improve the ventilation common to the whole building, and to isolate, as far as practicable, the ventilation of each ward from that of any other portion of the establishment, at the same time that we seek to improve the ventilation of each individual ward. Free communication should be established between the ends of passages and corridors and the external air; outlet shafts should likewise be introduced into them; communications between passages and several wards should, as far as practicable, be done away with; and the wards should obtain their supply of air from without by means of horizontal shafts, ventilating grates, Sheringham valves, and other expedients. In many hospitals it would be easy to adapt an open balcony to some of the end wards of a building, and provide them with an increased degree of ventilation for cases where this was deemed requisite. Every institution should possess separate wards or huts for the reception of patients requiring isolation, with a view of preventing the spread of contagion, and of providing for cases where the amount or nature of the discharges was likely to foul the atmosphere, and render the provision of very ample space and the freest ventilation necessary. In suitable seasons we do not see any reason why temporary hospitals of canvas should not be utilised for such cases. Many of our metropolitan hospitals have supplemented their accommodation by rural or seaside institutions connected with them. This system is an admirable one, and will, we trust, be more generally adopted; for by this means suitable cases and convalescents can have the benefit of a change of air, and the parent institutions can largely increase the cubic space for those that remain.

ON THE EXCRETION OF UREA BY THE KIDNEYS.

A PAPER appears in the part just issued of M. Brown-Séquard's *Archives de Physiologie* by M. Gréhant on the Excretion of Urea by the Kidneys, in which he confirms and extends the conclusions arrived at by MM. Prevost and Dumas, Claude Bernard, Picard, and others, to the effect that urea, after having been generated in the blood and tissues, is simply excreted by the kidneys; and in opposition to the views of the well-known physiologist, M. Hermann, who has recently endeavored to show that urea and uric acid are not only eliminated but are formed by the renal tissue. The arguments advanced by the former observers are familar to our readers, and are essentially—that urea can be shown to be present in the blood; that the blood of the renal vein contains less urea than that drawn from the renal artery; that where the kidney is diseased urea accumulates in the blood; and that, since urea exists in the blood, traces of it ought to be found in other secretions, which has been actually demonstrated. M. Hermann, on the other hand, based his conclusions upon the considerations, first, of the very minute proportion of urea contained in the blood, as compared with that of the urine; secondly, the very small quantity of urea found in the blood after the extirpation of both kidneys, and the large augmentation which occurs after simple ligature of the ureters (this last operation hindering the excretion of the urea formed, though the formation of the urea is still rendered possible by the existence of the kidneys), whilst, on the contrary, after nephrotomy, the lower products of oxidation, such as creatine and creatinine, are found to be considerably increased, as Oppler has shown, both in the blood and in the muscles; thirdly, the presence of the lower products of oxidation, as taurine, cystine, &c., in the substance of the kidneys, whilst these are not found, except in rare instances, in the urine—the inference of course being that it is these lower products that are converted into urea by the tissues of the kidney; lastly, the absence of uric acid, as a general rule, in the blood.

A year or two after the publication of these views an important series of observations were undertaken by M. Zalesky at Tübingen, under the superintendence of M. Hoppe-Seyler; and the conclusions at which he arrived were, that the quantity of urea was nearly the same in the blood of healthy as of nephrotomised dogs, the removal of the kidneys in these animals appearing, consequently, to exert no influence on the quantity of urea in the blood; that after ligature of the ureters a considerable augmentation of the urea in the blood, muscles, lymph, and, generally speaking, in all the different liquids and solids of the economy, always occurred; that no urea could be found in the bile, which was always abundant, either after nephrotomy or after ligature of the ureters; that even when the amount of urea accumulated in the blood was considerable there was no augmentation in the amount of ammonia it contained; that in nephrotomised animals the amount of creatine contained in the muscles was always much increased; that the degree in which the symptoms of uræmic poisoning exhibited themselves had no relation either to the quantity of urea or of ammonia present in the blood; and finally, he expressed himself as being unable to give any reason for the increase of urea found by Prevost and Dumas and other chemists in the blood of nephrotomised animals. On the whole, M. Zalesky coincided with M. Hermann in thinking that the kidneys are actively secreting organs, which generate urea and uric acid in their tissue.

With these conflicting views before him, M. Gréhant determined, supported by the advice of MM. Bernard and Brücke, to undertake a series of researches which should dispose of the question whether urea is only excreted by the kidneys, or is also secreted by them. As a preliminary to this inquiry, however, it became necessary to discover an accurate quantitative test of the amount of urea contained in any liquid; and the present essay of M. Gréhant is devoted to this subject. M. Millon's test for urea consists of a solution of nitrous acid, obtained by adding nitric acid to a globule of mercury in a test-tube. The metal is attacked, and the nitrous acid produced remains dissolved in the acid; this fluid decomposes urea into carbonic acid and nitrogen, and the amount of the former produced, as shown by the increase in weight of a solution of potash, gives the amount of urea present. This process has been much improved and rendered far more accurate by M. Gréhant, by collecting not only the carbonic acid, but the nitrogen, by means of an air-pump; and by a comparison of the volumes of each gas demonstrating that the urea alone has undergone decomposition. He has ascertained that a cubic centimetre of nitrogen and of carbonic acid at 0° C., at normal pressure, represents exactly 2·683 milligrammes of pure urea. In order to obtain the amount of urea in the blood, it is requisite to make an alcoholic extract of 25 grammes only, and to redissolve in water the product of the evaporation of this fluid. The results of his inquiries, pursued with the aid of this new method, show that, immediately after nephrotomy in the fasting dog, urea begins to accumulate in the blood, its increase being manifest within three hours after the operation; that the increase of weight of the urea in the blood and in the lymph, twenty-four hours after the ablation of the kidneys, is equal to the weight of it that would have been excreted by the healthy fasting animal in the same space of time; that the accumulation of urea in the blood, in the hours that succeed nephrotomy, follow the same march as after ligature of the ureters; that after ligature of one ureter the quantity of blood circulating through the kidney of the side tied diminishes; that, under normal conditions, the blood of the renal vein always contains less urea than the corresponding artery; that, in an animal in which the ureters have been ligatured, the renal venous blood obtained twenty-four hours after the operation contains as much urea as the renal arterial blood, so that the tissue of the kidney neither excretes nor secretes any more. Lastly, he shows that ligature of the ureters and nephrotomy are two operations that are identical in their results: they both suppress the eliminative function of the kidneys, whilst they form no obstacle to its formation, which takes place *outside* these organs.

Medical Annotations.

"Ne quid nimis."

THE COMPRESSION TREATMENT OF ANEURISM.

A PAPER read by Dr. Rawdon Macnamara, of Dublin, at the recent meeting of the British Medical Association, on the Treatment of Aneurism by Compression, gives an excellent *résumé* of the method pursued by the Irish surgeons, by which results are obtained which have hitherto not had their counterpart in the practice of British surgeons. The merit of having revived the method of compression, and of having adapted means for its proper employment, is rightly claimed for the Dublin surgeons, among whom the names of Bellingham, Carte, and Tufnell are most noteworthy; whilst to Mr. Todd (the father of Dr. R. B. Todd) is due the credit of having first successfully carried out the treatment so as to affect a cure in 1825.

Dr. Macnamara illustrated his paper by exhibiting the various instruments employed and the modifications made in them from time to time during the last forty years. The first application of pressure was unbearable, because "dead pressure" alone was employed, until Dr. Carte suggested the combination of elasticity with pressure. Then, again, Bellingham pointed out the error of restricting the pressure to one portion of the artery, and hence the modern practice of using two tourniquets. The same surgeon also exploded the mistaken notion that it was necessary to arrest the current of blood through an aneurism in order to effect a cure; whereas a feeble current of blood through the sac is not only desirable but essential. Another error, and one which, we believe, still obtains extensively among English surgeons, is the application of a bandage to the entire length of the limb in which the aneurism is situate. This, however, as Dr. Macnamara pointed out, far from supplementing the cure, actually obstructs it, inasmuch as it interferes with the establishment of the collateral circulation.

The following is briefly the scheme of treatment so successfully pursued by the Dublin surgeons:—The patient having been brought into good general health, and being neither anæmic nor hyperæmic, an elastic compressor is applied to the upper part, say of the femoral artery, a second compressor being arranged some three or four inches lower. The upper instrument is then delicately adjusted so as to control the artery, and just arrest the pulsation in the sac and no more. "A roster of intelligent students is now organised, and to them is entrusted the management of the case. Two are appointed to take charge of the patient for one hour, when they are relieved by two others, and so on during the day, whereby we secure unwearied attention during the period that pressure is kept up; and as in Dublin we visit our hospitals at 9 A.M., the treatment generally commences about that hour, and is continued up to 9 P.M., when all pressure is removed, and the patient is encouraged to take his night's rest undisturbed. Next morning the treatment is resumed, and so on until the cure is perfected."

Dr. Macnamara then pointed out that, though every exertion is made to conduct the case with as little inconvenience or pain to the patient as possible, the occurrence of a sharp pain in the neighborhood of the knee is looked for as the harbinger of cure, since it depends upon the rapid enlargement of the collateral circulation. Lastly, Dr. Macnamara repudiated, with true national warmth, the idea that Irish surgeons shirked the ligature of important arteries when required, and attributed their success by the compression method, to (1) faith in the method; (2) national pride in its success; (3) morning visits of the surgeons to the hospitals; (4) proximity of the hospitals to the residences of the surgeons; (5) the removal of all pressure at night; (6) the intelligent co-operation of the patients; and (7) the physique of the patients, who contrast with the plethoric subjects of aneurism met with in England.

CHOLERA, FALSE AND TRUE.

Now that another visitation of our shores by Asiatic cholera seems to be imminent, or at least highly probable, it is hardly possible to be too cautious in giving currency to rumors that the disease has actually appeared. It is very possible that errors upon this point may arise from our unfortunate nomenclature, and especially from the use of "choleraic" as a descriptive adjective. Diarrhœa is only one symptom of cholera, and not the most important one, since there are many instances on record in which people have died from cholera without diarrhœa having occurred. But a sharp attack of diarrhœa is often attended by cramps and by great prostration, and hence has received the misleading designation of "choleraic diarrhœa." It cannot be too widely known that cholera, although often preceded by what has been called premonitory diarrhœa, is a disease *sui generis* from its commencement to its close, and quite incapable, as far as we know, of originating in our climate from the influence of those insanitary conditions which foster and increase the poison when once it has been introduced. The so-called "choleraic" diarrhœa, therefore, is not a form of cholera, or a first stage of it, or even a milder variety; but is something altogether separate and distinct. It may prevail when cholera prevails, just as scarlet fever and small-pox might both be epidemic at the same time; and it is sufficiently often a cause of death to figure largely in the returns of the Registrar-General, and to justify alarm when it attacks the feeble, the very young, or those advanced in life. But no medical man, who has seen much of Asiatic cholera, should mistake the one disease for the other; and our caution to practitioners may therefore be confined to pointing out the possibility of a misleading use of words. The English cholera, or choleraic diarrhœa, or sporadic cholera of the bedside, may easily be called "cholera" by non-professional persons, and then Asiatic cholera by neighbors, until a simple malady is made to furnish a line of capitals in the sensation placards of the evening papers; and in times like these the spreading of consternation in a locality is itself no small evil.

ELECTRO-MOTOR PROPERTIES OF EMBRYONAL TISSUES.

THE last part of the *Zeitschrift für Biologie* (Band vii., Heft ii.) contains a continuation of the interesting histological and physiological papers by G. Valentin. The first of these treats of the electro-motor peculiarities of the nerves and muscles of the embryo. In this investigation Valentin set himself to determine whether the electro-motor peculiarities of the nerves and muscles first make their appearance when these tissues present their mature and fully-developed structure, or whether they are present from the earliest period. He also endeavored to ascertain whether the surfaces that in the mature condition are positive and negative possess the same reaction in the immature state. His experiments were made on the embryoes of fowls, and he found that it was of little use experimenting before the eleventh day, as the tissues were not previously sufficiently differentiated. His researches show that the usual muscular current, with its negative variation during contraction, may be distinctly observed long antecedent to the complete structural development of the muscle, probably before or just after the first appearance of transverse striæ. The ordinary muscular current between the natural longitudinal and the artificial transverse section is perceptible even for two days after death. In like manner the nerves, when still so unformed as to give no trace of medullary sheath in ordinary light, and only the faintest trace of it in polarised light, already possess their power of conducting impulses causing the contraction of muscle, and exhibit their usual electro-motor relation, and the ordinary reversal of the current (negative variation) during excitation. The electro-motor properties, therefore, of both muscle and nerve are, it is thus shown, acquired before their structure is complete.

ACTION OF QUININE ON THE UTERUS.

M. MONTEVERDI communicates to the *Nuova Liguria Medica* the results of a series of experiments he has made on this subject. He has invariably employed the sulphate of the alkaloid. He finds that quinine exerts a general tonic influence on all the organs of the body, but especially upon the uterus. In the course of half an hour after it has been administered, short contractions occur in the uterus, unaccompanied by pain; and these gradually become longer and stronger, with distinct intermissions, so as to resemble closely ordinary pains of labour, the effect lasting for about two hours. In order to effect the expulsion of the fœtus and of the placenta, he believes that doses of about four grains will be found the most appropriate. Quinine appears to be preferable to ergot, because it exercises no injurious influence either on the mother or child, because it is very certain in its action, because the contractions it induces are very regular and natural in their character, and because it is free from danger at whatever period of pregnancy it is administered; or in cases of contracted pelvis, incomplete dilatation of the os uteri, and antecedent to the escape of the waters. He finds that it is of service in the metrorrhagia of pregnancy, in amenorrhœa in consequence of a torpid condition of the uterus, and in puerperal fever, as a consequence of its tonic action. He considers quinine to be indicated in all diseases of the digestive organs, and of the urino-genital system dependent upon atony of the various organic constituents. M. Monteverdi gives a caution in regard to the use of quinine in pregnancy complicated with any disease requiring its administration, lest abortion or premature delivery be induced. In cases where quinine proves too energetic in its action, he recommends opiates to diminish its effect. He considers quinine to be contra-indicated as a general rule in hysteria.

NEW TREATMENT OF CHOREA.

M. WENZ, in Dörsbach, is stated in the *Aerztliches Literaturblatt* for July 7th to have treated a girl of seventeen years of age, who had not hitherto menstruated, but who had been for several weeks affected with chorea of the right side, by local anæsthetisation of the skin over the spine. He employed Richardson's apparatus, with thirty grammes of sulphuric ether, slowly traversing the whole length of the column. A cataleptic condition was induced, with suspended consciousness. The same proceeding was repeated for several days, but with only half the amount of ether, and with the result that the chorea was abolished, its return being prevented by judicious general treatment directed to the improvement of the quality of the blood. Dr. Wenz concludes his paper by recommending the adoption of a similar plan in cases of tetanus.

Correspondence.

"Audi alteram partem."

TREATMENT OF TETANUS.

To the Editor of THE LANCET.

SIR,—Some cases of lock-jaw having been reported lately ending fatally, as they almost invariably do, I think the following case of successful treatment may be interesting and worth recording in your journal:—

Stephen K——, aged fifty, farm-laborer, had his left thumb severely crushed about two months since by the fall of a heavy plank of timber, lacerating the flesh, and nearly tearing off the nail. He applied poultices, and, as it appeared to be going on very well, tried to continue his work, feeling, as he describes it, "a curious sensation all along his spine such as he never felt before." After some days lock-jaw set in, and I was sent for. I found him in bed, propped up and leaning forward, with symptoms of emprosthotonos. The jaws were firmly locked; muscles of the face, throat, and neck rigid and contracted; pulse small, quick, and very irregular; skin dry; rigors frequent, with cold extremities; great tenderness along the spinal cord, more particularly over the cervical vertebræ.

Having previously seen a few cases of that formidable disease, and read of others treated with the various forms of opium, belladonna, and other narcotics without any good result, every case terminating in death, I considered that line of treatment waste of time. Having noticed the power of bromide of ammonia over nervous affections implicating the spine, I determined to try it in large doses. The patient having lost the greater number of his side teeth, liquids were introduced, although deglutition was extremely difficult. I commenced with the following mixture:—Bromide of ammonia, half a drachm; spirits of chloroform, one drachm; camphor mixture, an ounce and a half: every four hours. After twenty-four hours there was just a perceptible improvement. I increased the dose of bromide of ammonia and spirits of chloroform one-third more, every four hours, as before. After forty-eight hours the skin began to act powerfully: the sheeting, blankets, and bed were completely saturated. The perspiration being free from the slightest acidity, differed in that respect from the perspiration of rheumatic fever. Still there was no relaxation of jaws or muscles, and he was unable to lie down. I persevered steadily, getting in as much nourishment as possible. There was great obstinacy of bowels, another feature of this disease, requiring twenty grains of jalapine, combined with the same quantity of scammony, every morning, to produce one evacuation. I occasionally added five grains of calomel. After eight days the jaws and muscles were slightly relaxed, but did not admit of his lying down. After two weeks the relaxation was complete; he could open his mouth, but had no power of mastication for several days. I had tried galvanism, producing spasmodic twitchings of the facial muscles, but cannot say it was of much use. Of course there was extreme prostration after the attack was subdued. Quinine, port wine, &c. &c., overcame that, and this week he has resumed his employment.

I am, Sir, very truly yours,
P. O. H. BRADY.

Watford, Herts, August, 29th, 1871.

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PRURITUS VULVÆ.

To the Editor of THE LANCET.

SIR,—In a late number of your journal "Chirurgicus" says he would be glad of any suggestions touching the tractability of pruritus vulvœ. As the remedies he enumerates are not of those I employ, I may be permitted—"way out in America"—to state that during an extensive practice (since 1848) in New York city and elsewhere, I have in very many cases of that disease succeeded with injections of biborate of soda, ten grains to the ounce of water. The last few years, and with admirable success, I have injected with the bisulphite of soda, fifteen grains to the ounce of water, to the extent of filling the vagina for three and four times daily. Considering this local disturbance arises from constitutional variations, unless from fibrous or other organic growths, I uniformly conjoin the internal administration of suitable tonics in bitter vehicle, such as a decoction of chammomile or calumba, with orange-peel, of which I prefer the dilute nitric acid, twenty to forty drops three times daily. When anæmia exists, I prescribe quinine and citrate of iron, five to ten grains, three times daily. I should be pleased to hear of "Chirurgicus's" success.—Yours respectfully,

D. D. T. NESTELL, M.D.,
Post Surgeon, U.S.A.

Camp Crittenden, Arizona Territory, Aug. 10th, 1871.

FERMENTATION AND DISINFECTION.

PROF. HOPPE-SEYLER, along with Dr. N. Zapolsky, has recently made a most important contribution to our knowledge of the processes of putrefaction and disinfection (*Med.-Chem. Unters.*, 1871, pp. 557–581). His experiments have a very significant bearing on Pasteur's researches. Hoppe-Seyler suggested to Zapolsky that the latter should first investigate the action of carbolic acid on albuminous matters and on ferments. This was done, and it was found that the acid precipitates albuminous liquids only when these are neutral, or nearly so, and the acid is in almost saturated aqueous solution. The action of carbolic acid on ferments was most remarkable, for it was ascertained that neither the formation of hydrocyanic acid from the fermentation of bitter almonds, nor the generation of oil of mustard, nor the conversion of starch into dextrine and sugar by diastase or saliva, is prevented by carbolic acid. The solution of fibrin by the gastric juice was indeed prevented by the acid, but not till a considerable quantity had been added.

At this point Hoppe-Seyler himself took up the research. His remarks, no less than his experiments, are of a highly instructive nature. He first states that the ferments operated upon by Zapolsky were entirely such as are formed of chemical insoluble substances. Liebig's altered views on fermentation, putrefaction, and eremacausis are next criticised, and Pasteur's assumption that because living organisms are invariably present in putrefying and fermenting fluids, *therefore* those organisms are necessary to, and the cause of, the changes going on, is controverted. It is true, he says, that the organisms may contain the ferment, but it is not the less necessary to separate the ferment from the organism in order to form a correct estimate of the questions at issue. No clear line is drawn between fermentation and putrefaction.

In Hoppe-Seyler's experiments, the serum of pus, filtered and perfectly clear, and hydrocele fluid, were treated in various ways, some of the experimental tubes being hermetically sealed with almost entire exclusion of air, others being loosely corked; and they were exposed to varying temperatures up to 58° for various periods of time. The results show that the fluids underwent putrefaction, whether living organisms were present or not, and that these exercised apparently no influence on the rapidity of the process, but that this was solely dependent on temperature. Two similar fluids were kept, the one loosely corked at a temperature of 68° F., the other in an hermetically sealed tube at 108° for equal lengths of time. At the end of the experiment the former, which swarmed with monads and vibriones, had undergone much less putrefaction than the latter, in which no signs of life or organisation could be detected.

The action of carbolic acid on the lower organisms and on ferments was demonstrated to be analogous to that of heat. If a putrefying albuminous solution be gradually heated, first the organisms therein perish, then at a more elevated temperature the ferment is altered so as no longer to act as a ferment. So, on adding carbolic acid to a similar solution, all life ceases when 1½ per cent. of acid has been added, whilst the putrefaction of albumen will proceed, though slowly, with as much as 1 per cent. of the disinfectant. Commencing coagulation of the albumen appears to set a limit to the splitting up of this substance under the action of a ferment.

Incidentally it was found that cholesterine disappears in putrefying solutions, so that this substance can no longer be regarded as a product of the splitting up of albumen by fermentative changes; it is more probable that it is a product of oxidation.

Whilst it is thought to be proved for some ferments, and asserted of others, that living organisms are not indispensable to their commencement and continuance, it is not pretended that these processes do not stand in a definitive relation to the lower organisms; the ferment cannot be renewed without the organism.

An elaborate theory, supported by experiments, is next advanced as to the source whence such organisms as live in fermenting liquids with entire exclusion of oxygen, derive the force necessary for their growth and the decomposition of the fermenting substances, and this is thought to be derived from the heat set free by the splitting up of complex into simpler substances.

Hoppe-Seyler's observations on the use of disinfectants are most important. He points out that his researches show how necessary it is not only to destroy the products of putrefaction and fermentation—for the destruction of such ill-smelling gases as sulphuretted hydrogen and ammonia can have no more real influence on the fermentative changes involved in cholera, typhus, &c., than the removal of carbonic acid can have upon the progress of alcoholic fermentation,—but also to go beyond even the destruction of the living organisms, and attack the ferment, which as has been pointed out, is much more resistant than the organisms. Disinfectants, he thinks, act by forming precipitates with ferments, but it is not proved that these may not resume their activity under altered conditions. Of all aërial disinfectants he thinks sulphurous acid gas, from burning sulphur, the best. One or two per cent. of the gas in a room will entirely prevent or stop the growth of the lower organisms. This quantity is obtained by burning half a drachm or a drachm respectively of sulphur for each 100 cubic feet of space to be disinfected.

News Items, Medical Facts, &c.

TAPPING IN GASEOUS INTESTINAL DISTENSION.—M. Fonssagrives, Professor at Montpellier, has communicated to the Academy of Medicine of Paris a valuable paper on this operation, which, as we all know, is often performed in veterinary surgery. It is said that in Bolivia it is often had recourse to. The best instrument is a grooved needle; but the author has used with success a simple hydrocele trocar. M. Huguier employs a very sharp needle playing in the canula of a trocar; this needle merely separates the intestinal fibres without dividing them, and prevents the escape of gas or fluid into the peritoneum. When the distension recurs the tapping may be repeated. Numerous operations are not more dangerous than one, as is clearly shown by eighty-four cases collected by the author. M. Fonssagrives cites several examples where asphyxia was imminent by the pushing up of the diaphragm. He thinks that this tapping could be used with advantage in strangulated hernia to facilitate reduction, either before or after kelotomy, especially when aspiration is combined with the artificial freeing of the gas.

BICHLORIDE OF METHYLENE IN ITALY.—The anæsthetic use of bichloride of methylene is not very general at the present time in this country, but it would appear that it is in great favor at Padua, where it has been regularly employed since July, 1868, to the exclusion of ether and chloroform. Mr. Robbins, of Oxford-street, sends a supply twice a year, and since the time above stated, 108 operations have been performed with this anæsthetic. M. Rossi states that the patients may be thus divided:—52 became narcotised quietly and naturally in a very short time, and without any struggling; 32 showed some excitement, and fell asleep after inhaling from eight to ten minutes; 4 only were violently agitated, and were from fifteen to twenty minutes before they slept; 20 were proof against the anæsthetic after breathing it for forty or fifty minutes; and 8 had severe vomiting.

TERRA DEL FUEGO has been traversed by Lieutenant Masters, R.N., who has discovered that the natives believe in devils, and that they are the departed spirits of members of the medical profession. The main object of their religious ceremony is to keep these devils at a distance from them.

THE scientific examination of Mr. Grote's head, which has been made by Prof. Marshall, has revealed the fact that the brain of the deceased historian was remarkably small. It is said, however, to have been rich in convolutions.

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